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.. The ..
Queensland Naturalist

Journal of the
Queensland Naturalists' Club
AND
Nature-Lovers' League.

192
"The Poetry of Earth is never dead."—KEATS.

The Author of each Article is responsible for the Statements
expressed therein.



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The Queensland Naturalists' Club

— AND —

Nature-Lovers' League.

Official Journal—The Queensland Naturalist.



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MEETINGS:

Monthly Meetings are held at No. 15, First Floor,
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The Queensland Naturalist.

JOURNAL OF THE QUEENSLAND NATURALISTS' CLUB
AND NATURE-LOVERS' LEAGUE.

VOL. IV.

MARCH, 1923.

No. 1.

PROCEEDINGS.

OCTOBER, 1922—MARCH, 1923.

Evening Meeting, 16th October.—The meeting falling near Bird Day the evening was devoted to ornithological discussions. The principal subjects were the screening of a number of slides of birds at their nests by Mr. A. H. Chisholm and exhibits of skins by Mr. R. Illidge.

Evening Meeting, 23rd October.—The evening was devoted to a lecturette on "Willis Island" by Mr. L. Dunne. Mr. Dunne exhibited in illustration of his remarks a large series of marine specimens gathered during his stay as one of the wireless operators on the island.

Excursion, October 23rd.—A large number of members visited Mountain Camp, Samford Range, and though attention was paid in a general way to natural history the main feature was a visit to the granite quarries where the stone is being cut for the new Town Hall. Dr. E. O. Marks acted as leader.

Evening Meeting, 6th November.—The special subject for the evening were lantern lectures on "Fraser Island" by Mr. A. H. Chisholm (Birds) and Mr. C. T. White (Plants). His Excellency Sir Matthew Nathan, Patron of the Society, was present and on behalf of the members presented to Mr. A. H. Chisholm, who was leaving shortly for Sydney, a wallet containing a cheque.

The Governor, when making the presentation, said there were few who served their country better in ordinary times than those who rightly directed its pleasures. His Excellency held that such right direction among civilised humanity was largely in the way of literature, art, and nature. He did not think that the real nature-lover ever tired of his mistress, whose pursuit, however, was difficult in the streets of towns. It had been Mr. Chisholm's high

function in Brisbane to take many aside quietly and introduce them to the wonders of the country so closely adjoining it, and to help those living in the country to enhance their natural inclination to those wonders by adding knowledge to it. They wished Mr. Chisholm, who was joining the staff of the "Sydney Telegraph," equal success in the new sphere and, in the belief that his work would be always to him a labour of love, they hoped for its uninterrupted continuance through long years of happy life.

Mr. Chisholm, when expressing his appreciation of the honour paid him, said Queensland was a State well worth looking after, for not the least of its great assets were its wonderful birds and its bird life.

Annual Meeting, 19th February, 1923.—The President delivered an address on "The Photographer Naturalist" (see p. 5). The officers were elected as set out on the cover page of this issue. It was moved by Mr. H. A. Longman and carried unanimously, "That the club again places on record its hearty appreciation of the good work done by the Department of Agriculture and Stock in protecting our native fauna, and earnestly hopes that this policy will be maintained in Queensland." The annual report of the Council was read and adopted (see p. 3).

Excursion, 17—19th March.—A large number of members availed themselves of the opportunity of St. Patrick's Day falling on a Saturday to spend a week at Tallebudgera Creek. The camp-out was a decided success, and a good deal of collecting and observing was done.

Evening Meeting, 19th March.—The meeting was devoted to exhibits and notes by members. Exhibits were made by Mr. H. A. Longman, F.L.S., Mr. Fenton Robinson, Mr. D. Curtis, Mr. W. M. Tanner, and Mr. C. T. White. A few notes on the birds observed at Tallebudgera were given by Mr. G. H. Barker.



QUEENSLAND NATURALISTS' CLUB.

ANNUAL REPORT, 1922-1923.

Your Council has much pleasure in submitting its Annual Summary of the proceedings of the Club during the year 1922.

Meetings and Excursions.—There have been held eight (8) Council and eight (8) Ordinary Meetings, also a number of Excursions. Attendances at both meetings and excursions have been well maintained.

Membership.—The total number of members is now in the vicinity of 100, there having been an increase of twelve (12) during the year.

Through the death of the late Dr. John Shirley, the Club, and the State generally, lost a most enthusiastic member. His knowledge and accomplishments on scientific and natural history matters were well known, and were always at the disposal of others. Also, through the departure to Sydney of Mr. A. H. Chisholm, the club has lost a most influential and active worker and ornithologist. Your Council have, in recognition of his valuable services, appointed him a Life Member.

The newly-formed Nature Lovers' League occupied the attention of your Council. Mr. C. G. Stevenson, the Honorary Secretary, will deal with this matter.

Your Council were consulted re certain recommendations and amendments to the Bird and Animal Act of the State, and have to report that the passing of the Bird and Game Bill, during the last session of Parliament, was mainly due to Mr. Chisholm's influence. It will be necessary for the Q.N. Club to be on its guard in respect to any relaxation of the present game laws. It might be mentioned that 200,000 skins (Koala and Opossum) were exported from Queensland during the short period the season was re-opened last year.

A movement was made to have an area, including the Limestone Caves near Rockhampton, preserved against total destruction. This matter is still in abeyance. Also your Club is interesting itself in the "Hercules Bank," a small island at the mouth of the Brisbane River. We succeeded in having it proclaimed a Bird Sanctuary, and efforts are to be made to plant it with suitable trees.

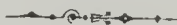
Your Council also gave support to a proposal by Mr. C. T. White to establish an Arboretum in Victoria Park, and Mr. G. H. Barker and the Honorary Secretary were members of a deputation, representative of various scientific bodies, that waited on the Mayor in respect to the movement.

The Mayor stated in reply that Victoria Park could not be given over for the purpose, but suggested One Tree Hill Reserve. As this, however, is the only piece of natural forest in the immediate neighbourhood of the city, in the opinion of the members of the deputation, it was thought a pity to interfere with it.

The Wild Flower and Natural History Exhibition, which was held during September, is worthy of mention as the most successful feature of the year's work. It was held during a dry spell, but the display botanically was a most representative one, and proved the most successful, financially, yet held. It has also proved to be the means of making the Club's Journal a financial success. It is to be hoped that continued support will be forthcoming. As this event is popular with the public, it should be more representative of the Club's interests.

Great Barrier Reef Committee.—A Committee composed of representatives of various Australasian Scientific Societies and Institutions has been formed at the instigation of the Queensland Branch of the Royal Geographical Society of Australia for the purpose of carrying out investigations on the Great Barrier Reef. Mr. H. Tryon was appointed the Club's representative. Several meetings have been held, and it is hoped later that valuable research work on problems connected with the reef will be carried out.

Conclusion.—In conclusion, your Council wish to place on record their thanks to all who have assisted with the meetings of the Club during the past year. We hope that members will continue to increase their interest and take advantage of the splendid opportunities which occur to study the many branches of Natural History.



THE PHOTOGRAPHER NATURALIST.

By R. L. HIGGINS.

(Presidential Address.)

It has been said that Photography as a means to an end—whether that end be picture-making, scientific research journalism, or any of the daily increasing applications of the craft—must make progress until it attains proportions of which we now hardly dare to dream. Although this quotation was made some years ago, yet it is now correct in certain spheres of scientific work to-day. The accuracy and rapidity which formed so marked a feature in photographic methods are no doubt mainly answerable for the increased employment of the camera by naturalists. The naturalist, however, will not necessarily be content with a single accurate and rapidly executed picture of his subject—he requires rather a series of pictures which are not only accurate, but also characteristic and coherent. To put briefly the three qualities that are essential to good Natural History illustrations are accuracy, character, and continuity. Accuracy need not be dilated upon, as it speaks for itself, but character and continuity are qualities the absence of which have been the cause of failures in Natural History work.

Characterisation is realised in a zoological photograph when the subject is represented in a characteristic attitude and amid characteristic surroundings. It is therefore in these respects that photographs of stuffed animals are as a rule unsatisfactory.

Publications on Natural History entirely illustrated by photographs put fairly and squarely before the public art to which one could hardly take exception.

The consideration of character, movements or attitudes characteristic of different animals have become so familiar in many cases as to have passed into proverbs. To "creep like a mouse," to "stare like an owl," are expressions which occur to one, and such expressions are originally the result of close observation.

Most animals, including man, adopt certain definite postures and expressions more frequently than others. These, from constant repetition gradually come to be re-

garded as characteristic. They are more lasting in point of time, than those postures and expressions, and create a more lasting expression. Vanity is characteristic in the human race, but fortunately the element of vanity in the character of wild animals is generally small. The fact that their whole aim in life is to live themselves and produce their kind ensures that their characteristic expressions and attitudes shall be of a less complication and confusing character than those of the human race. Their frequency of recurrence may be taken as some guide to their importance.

In all animals at least two characteristics may be looked for—the position of action and the position of repose. Both admit of subdivisions—action for example may comprise defence and attack, and is the most difficult to deal with photographically.

There is also more than the mere attitude to be looked for in a characteristic photograph. The surroundings must be carefully considered and those particular markings and peculiarities which differentiate the subjects from closely allied species.

Now as to the third essential in Natural History work, supposing a sharp picture has been obtained in a characteristic attitude amid characteristic surroundings, and with its characteristic external features well displayed—the photographer is really only at the commencement of his difficulties and has by no means completed his task. Excellent as the picture may be, it should only form one of a series of pictures showing stages of development. It is in work of this kind that there seems to be such a magnificent field for photographer naturalists.

Let the photographer naturalist select a single living form in his particular locality, and determine to satisfactorily record every stage of its development which is photographically possible. Let him then turn his attention to its habits, to its characteristic positions of rest or movement, to its similarity or dissimilarity with closely allied species. Let him supply photographic deficiencies by a written record of colouration, measurements, and so forth, and the result can hardly fail to be valuable.

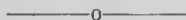
Special attention can be called to the phenomena of metamorphosis and mimicry. There is an inexhaustible supply in this country of material for the illustration of either.

What has just been treated is somewhat of an ideal standard for Natural History work and consideration can now be devoted to the most promising means of approach thereto. Photography for Naturalists falls into two obvious divisions—that which may be termed “stalking” photography and that which can be termed photography of natural objects by “control.”

The former whose success is largely dependent upon: (1) the observing power of the photographer; (2) on his patience; (3) on the time at his disposal.

The latter may be explained by instead of the camera being approached to the subject, the object is approached to the camera. Photography by “control” is obviously more limited in its action than “stalking” photography, but the field is a sufficiently wide one to satisfy any ordinary aspirations.

No amount of photographic skill will compensate for ignorance of Natural History, and it is to the acquirement of the patience and power of observation inseparable from the study of life in the bush that the photographer should primarily address himself.



RABBITS AND THEIR INTRODUCTION INTO AUSTRALIA.

By C. W. HOLLAND, Chief Clerk, Department of Public Lands, Brisbane.

Of the introduced pests of Queensland, rabbits may be assigned the second place, the first undoubtedly belonging to the prickly-pear. Before considering the introduction of these animals, a few facts concerning the rabbits themselves may not be amiss.

The family Leporidae, which includes the hares and rabbits, is widely distributed over the earth, but is not indigenous to Australia or the other great islands of the globe. That it is able to flourish in a variety of climates is evident from the fact that, in America, it is found from 83° north latitude in Northern Greenland, to beyond 40° south latitude in northern Patagonia. Its vertical range extends from sea-level to above timber line, reaching an

altitude of more than 14,000 feet on some of the higher mountains of Mexico (Reference 1, p. 16).

The term "rabbit" was originally applied to the young animal only, the full-grown one being called a "coney." Varro* tells us (2, p. 315) that they were called by the latter name because of their habit of making burrows (cuniculi) "underground in the fields to hide themselves in." Hence we get the specific name of the common European rabbit, *Lepus cuniculus*, now termed *Oryctolagus cuniculus*. Nowadays, the word coney has dropped out of general use, although it is still retained in some quarters.

With the ancients the term "hare" appears to have included the rabbit. This is seen from the statement of Pliny† that "There is also a species of hare, in Spain, which is called the rabbit" (3 Vol. II. p. 348). Strabo‡ also alludes to rabbits as "hares" (4, Vol. 1, Book III, p. 217), and Varro writes in a similar strain. Until quite recently, indeed, it was considered impossible to separate the rabbit and hare generically, and both were included in the genus *Lepus*.

All the different kinds of rabbit are believed to have descended from the common European species. Although doubt has been thrown by reason of the discovery of the remains of rabbits in Quaternary deposits North of the Alps (5, p. 363), it is the opinion of Naturalists that the original home of the European rabbit was the sea-board of the western end of the Mediterranean Sea (6, p. 502). According to Strabo they were introduced into Spain from Africa (4, Book III, p. 252). From these regions they spread, both by natural migration and human agency, northerly and easterly over temperate Europe and across Asia, ultimately reaching America, similarly to other mammals, by means of a land connection between Asia and America that existed in ages past. The extension of their range has been going on in recent times. For instance, they were little known in Scotland in the early part of the nineteenth century, but are now "found in all suitable localities up to the extreme north" (7, p. 495). Their introduction into Ireland is also recent. Changes in the distribution of rabbits

* M. Terentius Varro—B.C. 116-27.

† C. Plinius Secundus—A.D. 23-79.

‡ Strabo (of Amasia, in Pontus)—B.C. 63-A.D. 25.

are still proceeding in the United States of America, the main and most permanent ones being caused by man (1, p. 20). Burroughs tells us "the rabbit is now common in parts of our State (New York) where in my boyhood only the hare was found" (8, p. 38).

Rabbits have been subjected to much abuse by reason of their unpardonable interference with the monetary interests of man, but it should be remembered that the balance is not wholly on the one side. It has been said (9, p. 182), that man learned sapping and mining from the burrowing habit of these little rodents. Be this as it may, in Dr. Johnson's "*Rasselas*" (Chap. xiii.) the Prince and his companion find their way out of the Happy Valley by observing and imitating rabbits at their work of delving into the earth. Rabbits have been used for food by man from the earliest times. In the British Museum may be seen a bronze figure of a votive hare with an Ionic inscription of about B.C. 480, and this animal was commonly hunted by the ancient Egyptians. Among the Romans the "hare-warren" or leporarium was often an appendage of the farm, and Varro tells us (2, p. 313) that its "boundary walls should have a coating of plaster and should be high" as a protection against natural enemies, and he adds: "There is also the recent fashion, now general, of fattening them by taking them from the warren, shutting them up in cages, and fattening them in confinement." Alexander Severus* is said to have had a hare served daily at his table (10, p. 62).

According to Pliny, the Romans also found medicinal virtues in the "hare." The rennet was used as an ingredient in antidotes for poisons and was prescribed for fevers. It was also injected into the ear as a remedy for tooth-ache. The ashes of a hare, with oil of myrtle added, relieved headache, the patient drinking some water left in a trough after an ox or an ass had been drinking there. The ashes of the head made a good tooth powder, and with the addition of nard was a corrective of bad breath (3, Vol. V., pp. 333, 335, 329, 355).

In Britain during the Saxon period, rabbits formed part of the food of the people (10, p. 64), and as we come down the ages we find numerous references to their

* A.D. 209-235.

use as food. Cervantes alludes to it in his immortal work (11, Vol. 2, p. 408), and in the Spanish Rogue, published about the same period (12, p. 168), we find a rabbit pie among the dainties of a special repast. At one time there was, in some quarters, an objection that such use of rabbits was prohibited by Scripture (Leviticus, 11). This objection has been disposed of, the coney of the Bible having been identified as *Hyrax Procapra* *svriaca*, a small mammal that was first placed among the rodents owing to its general resemblance to them. Quaint old Isaac Walton must have seen some resemblance between the flesh of rabbits and cats, because in giving instructions for making a paste to catch carp, he says: "take the flesh of a **rabbit or cat**, cut small, &c." (13, p. 175). The same idea is responsible for a practical joke in Peregrine Pickle (Chap. xlviii).

The earliest explorers in North America found that the Indians had a taste for the flesh of the rabbit. The Indians held communal hunts, a practice that has continued until the present day. Alvar Nunez Cabeza de Vaca, who made the first overland journey in America, describes one that took place about 1536 (14, p. 82). Among the Washo Indians, who occupy a very small territory in the Sierra Nevada, the rabbit was regarded as such an important animal that there was a special hereditary official, called a "rabbit boss," whose duty it was to supervise all communal hunting, but especially that of rabbits. He had no authority over single hunters, but no organised hunt or drive could be carried on without his sanction (15, p. 11). As far back as we have any records the fur was largely used by North American Indians for clothing. In Coronado's* time, robes of woven rabbit skins were worn (16, p. 87). At the present day rabbit-fur forms the basis of felt for hats, and the skin is largely used for making gelatine jujube, sizing and glue (1, p. 13), and these animals are extensively bred for the market in both Great Britain and the United States of North America.

The rapidity with which rabbits increase is a matter of common knowledge, but there is no reason to believe that the rate is higher in Australia than in other parts of the world. The age at which they commence to breed is given by different writers as from three to six months.

* Francisco Vasquez de Coronado, Spanish explorer of New Mexico. A.D. 1510-1542.

According to one European authority (17, p. 446), "the young rabbit may begin breeding at the age of three months," the period of gestation being thirty days. This is considered by many to be the experience in Queensland, where the first litter may thus be produced at four months. In New South Wales it has been stated (18, p. 8) that "there is sufficient evidence that they not only breed at four months, but at times at three." The rabbit attains an age of seven or eight years (7, p. 494), and may produce nine litters in a year. The average litter may be put down at six. The rate of increase is, however, in Queensland, largely dependent upon the season and the abundance or scarcity of food, comparatively little breeding taking place in time of drought. It is, notwithstanding, evident that the rate of increase is very high.

Antiquity of Pest.—The record of the rabbit as a nuisance to man extends to ancient times. Pliny tells us (3, p. 349) that rabbits produced famine in the Balearic Islands by destroying the harvests, and that the inhabitants petitioned the Emperor Augustus to send soldiers to reduce the numbers of the rodents. On the authority of Varro it is stated (3, Vol. II., p. 295) that a town in Spain was undermined by their burrows. This writer is careful to let us know that he speaks from personal experience, for he makes Appian say: "You.....Varro.....were so many years in Spain that I believe the rabbits there followed you here" (i.e., to Italy). Strabo, also, states (4, Book III., p. 252) that prior to his day rabbits were, in Spain, "so great a nuisance that even houses and trees were overturned (being undermined) by their warrens." However much one may be disposed to receive these venerable tales with caution, certain it is that Spain had the reputation of being rabbit-infested. The Roman poet, Catullus,* confirms this by alluding to a native of that country as "rabbit-warren'd Celtiberia's† son" (19, p. 63).

Coming to later times we find the great French Naturalist, Buffon,‡ saying (20, p. 139), "rabbits.....do yet multiply so prodigiously in almost every place to which they are transported that it is no longer possible to extirpate them, and no small art is required in order to

* C. Valerius Catullus, B.C. 87-54.

† Celtiberia, i.e., Arragon.

‡ Comte Georges L. L. de Buffon, A.D. 1707-1788.

diminish their numbers." And again (p. 142): "These creatures multiply so prodigiously in countries which are proper for the breed, that the earth cannot furnish them with subsistence; they destroy herbs, roots, grain, fruit, and even trees and shrubs; and were it not for the use we make of the dog and the ferret, they would reduce the country to a desert."

The celebrated Italian anatomist, Spallanzani,* who lived about the same period, writing of the Lipari Islands, asserts (21, Vol. 5, p. 128) that rabbits were the only animals found in Basiluzzo, and they "nearly reduced to despair the few inhabitants of the island by the mischief they did to their corn." The people had resort to the importation of cats, which subdued the rabbits.

In England, although the poet Drayton† wrote of rabbits in his day as "banish'd quite from every fertile place" (21, "Polyolbion, fourteenth song, lines 113/114), they have, at times, amounted to a nuisance. The Ground Game Act, passed in 1880, permitted tenant farmers to kill rabbits on the land, but even since then they have done considerable damage. In the year 1893, for instance, "these animals amounted almost to a plague in some parts of England (23, p. 231). Simpson states that the loss caused by wild rabbits on estates in Great Britain has been "simply appalling. There are numbers of estates on which the destruction to plantations by rabbits has far exceeded the damage from all other causes put together" (24, p. 5).

Even at the present day it is necessary, at times, to destroy them in Great Britain, and quite recently it was urged that cultivations be protected by legislation from the ravages of rabbits, it being argued that a much larger area of land would be cultivated if this were done.

In the United States of America they destroy grape vines and garden crops, and are regarded as "serious pests to fruit growers on account of their fondness for the bark of trees and the tender growth of nursery stock," and it has been found that their "persistent destruction of small seedling trees interferes seriously with effects of the Forest Service to re-forest mountain slopes" (1, p. 11).

* Lazzaro Spallanzani, A.D. 1729-1799.

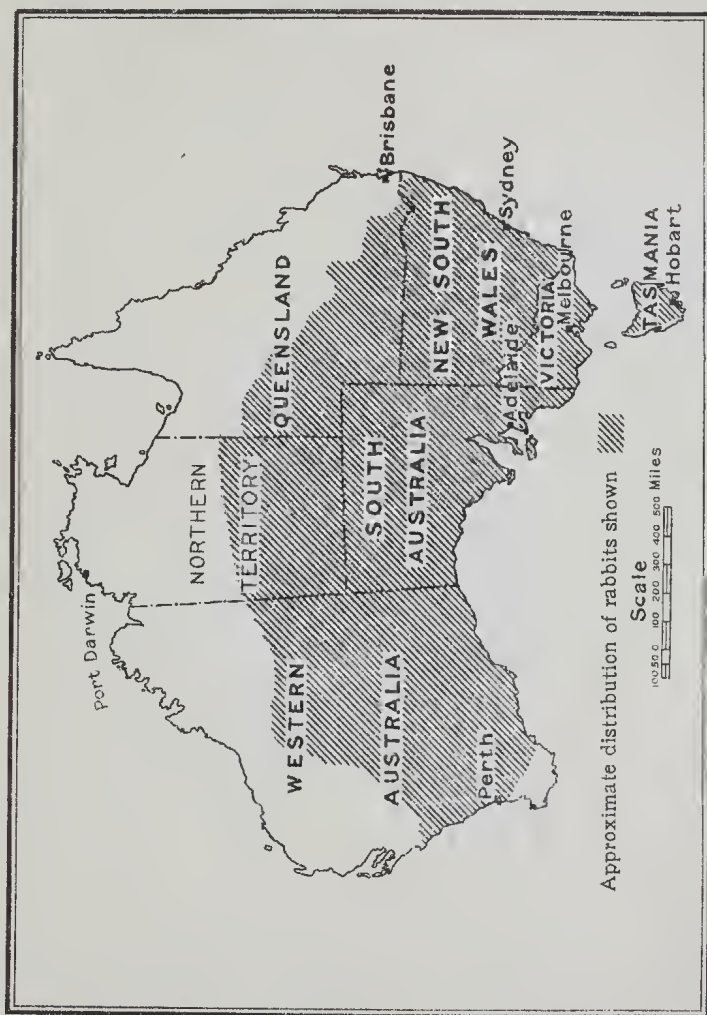
† Michael Drayton, A.D. 1563-1631.

Rabbits have ceased to be a nuisance in some of the countries where they were formerly abundant, e.g., Spain, Tunisia, and Algeria, although they are still found in considerable numbers in the lastmentioned country.

Introduction Into Australia.—In spite of the evidence of the danger of so doing, rabbits were deliberately brought to Australia by the earliest white settlers. They may, indeed, have been "first fleeters" like one species of prickly pear, since with a despatch from Governor Phillip to Lord Sydney, dated at Sydney on 9th July, 1788, was enclosed a return of "Live Stock in the Settlement, May 1st, 1788." This return included five rabbits, three of which belonged to the Governor, and two to the officers and men of the detachment (25, p. 52). According to P. Cunningham, Surgeon, R.N., rabbits were bred about houses in Port Jackson Settlement in 1825, but there were no wild ones in enclosures (26). Rabbits, both domesticated and common, were introduced into Tasmania quite a century ago. In "The Colonial Times" (Tas.) of 11th May, 1827, appears the statement that "the common rabbit is becoming so numerous throughout the Colony that they are running about on some large estates in thousands" (27, p. 9). In Victoria, the presence of domesticated rabbits is also reported in the early days of the settlement, a dispute as to the ownership of some of these rodents having arisen in May, 1836 (26). About the year 1844 rabbits were "thriving well in the vicinity of the Western Market, Melbourne, their presence being due to escapes from hutches in the market place (26). In the same year Rabbit Island, off Wilson's Promontory, was said to be "abounding in rabbits," which had evidently been introduced by whalers, but, being isolated, could not escape to the mainland (26). Apparently it was not until the late fifties that wild rabbits were introduced to Australia. In 1859 the clipper "Lightning" brought to Victoria for Mr. Thos. Austin, of Barwon Park, near Geelong, what was described as an "excellent addition to the live stock of the colony in the shape of 66 partridges, 4 hares, and 24 wild rabbits" (28, p. 36). Mr. Frank Mack, of Narromine, a nephew of Mr. Thos. Austin, informed the writer that, on arrival, the rabbits "were enclosed in yards made of paling fences (no wire netting in those days) and a special gamekeeper appointed to feed and tend them and destroy their natural enemies. . . . Later on, a high flood swept

away the paling fences, and the rabbits got a scatter on, but still they were in a measure protected, and as a special favour my uncle presented a few pairs to different station-holders in the colony." Three years afterwards they were reported as "becoming a pest" (26). An interesting item on this subject appeared in "The Yedman" newspaper (Melbourne) of 7th July, 1865. It read: "Mr. Austin, of Barwon Park, mentions the extraordinary fecundity of the rabbit in this colony. Six years ago he turned out thirteen. Since then their progeny has increased to such an extent that he has killed off his estate 20,000, and he computes that there must be on his property, and in the neighbourhood, at least 10,000." In the year 1864 we read of a gentleman having a large number of English wild rabbits—"probably two or three thousand"—in a warren near Sydney ("The Brisbane Courier," 27th July, 1864). These rabbits, the original stock of which may have been obtained from Victoria, do not appear to have any connection with the over-running of Australia, which seems to have started from Barwon Park. The late W. W. Hood, an authority on the rabbit question, told the writer that rabbits were turned loose in different parts of Victoria before they increased from Barwon Park, but they did not flourish. These were probably domesticated kinds. The wild ones spread over Victoria rapidly and crossed the Murray River into South Australia about 1878. They invaded New South Wales about 1880, and Queensland about five years later. From South Australia they entered the Northern Territory and Western Australia. Captain S. A. White, the well-known ornithologist and explorer, informed the writer that the wild natives met with on his expeditions in the interior of Western Australia, "those who had never come in contact with whites before, seemed very puzzled about the rabbits, and said they were a new kind of opossum which came from the East, pointing in that direction. They would not touch them at first, but now they looked upon them as good eating."

Introduction Into Queensland.—About two years after its foundation, the Queensland Acclimatisation Society, in 1864, set about introducing the silver-grey rabbit into Queensland. That no danger was apprehended from this domesticated rabbit is evidenced from the fact that the Hon. Secretary offered 2s. per head for the first half-dozen bred in the colony ("Brisbane Courier," 27th July, 1864). The following year a proposal to turn loose



some of these rabbits drew from a correspondent to the paper named (13th May, 1865) a protest on the score of the danger of their becoming a nuisance. Other domesticated rabbits, notably the Belgian and Chinchilla varieties, were also introduced. A considerable number of rabbits were bred in hutches in Brisbane in these days ("Brisbane Courier," 4th January, 1919). In 1866 some English wild rabbits received from Mr. Austin, of Victoria, were forwarded to Woody Island, Wide Bay, to be turned loose ("Brisbane Courier," 30th October, 1866). Two years latter the annual report of the Society stated that the English wild rabbit had effected a permanent settlement on this island, "from which it would be difficult, if not impossible, now to dislodge it" ("Brisbane Courier," 4th February, 1868). A report presented to the Society in 1869 stated that the wild rabbits on Woody Island had increased to such an extent that it was estimated that they numbered fully 12,000 ("Brisbane Courier," 17th May, 1869). Silver-grey rabbits were also liberated on Woody Island, and in 1870 it was reported to the Society that the whole of the northern end of the island was "positively swarming" with them ("Express," Brisbane, 21st May, 1870). The Society, however, moved cautiously in attempting to acclimatise rabbits, confining its efforts to the islands of Wide Bay and Moreton Bay, where they would of necessity be restrained within narrow limits ("Brisbane Courier," 31st August, 1869). Rabbits (most probably domesticated varieties) were, notwithstanding, turned loose in the sixties in several places near Brisbane. Other places were Warwick, Helidon, Clermont, Kilkivan, Wamba (Burnett District), Moreton Bay, viz., Moreton, Stradbroke, and St. Helena Islands, Fraser Island (Wide Bay), Percy Island (North Queensland), and Booby Island (Torres Strait). In some of these places they appear to have increased for a time, but eventually disappeared, and the expectation that they would not become a nuisance was apparently well founded. None of these rabbits have any connection with the pest in Queensland to-day, which is the result of migration from the South.

Not many years passed before the danger of the rabbits getting beyond control was realised. In 1879 a warning was sounded in Parliament by Mr. G. M. Simpson. Later in the year a Bill to prohibit the further introduction of these animals and restrict the breeding of them was introduced by a private member, Mr. G. M.

Davenport. This Bill was read a first time only, the motion for second reading lapsing.

In the following year another Bill was brought forward, again by a private member—the Hon. E. J. Stevens. At that time the danger of invasion from the south seemed remote, and the object of the Bill was to prevent the spread of rabbits then in Queensland and to stop the further introduction of them. One or two voices were raised against the Bill as being too stringent. During the debate in the Legislative Council one member said: "To provide that the whole population of a colony containing millions of acres should be debarred from introducing one of the most domestic, and certainly the most innocent, of all animals was really too absurd." This Bill became law as "The Rabbit Act of 1880." It prohibited the bringing of live rabbits into the country, made provision as to the manner in which rabbits could be kept in confinement, made the turning of them loose an offence, and authorised any person to destroy a straying rabbit.

South Australia and Tasmania were the first Australian States to legislate against Rabbits. Bills being passed in 1879. Queensland and Victoria followed suit in 1880, and New South Wales in 1883. In the last-mentioned State the matter had, indeed, been raised in Parliament in 1881 by Mr. E. Quin, but he was not taken seriously, it being suggested that he "would do better to bring in a Bill to exterminate fleas" (29, p. 21).

In 1883 and 1884 the attention of Parliament was called by Hon. E. J. Stevens to the rapid approach of rabbits to the Queensland border from the south, and in the latter year an expert sent by the Government reported that the rodents were fully 200 miles from the border.

Reports of the advance of the pest continuing to come to hand the Government, in the following year, again despatched an expert to determine the position of the rabbits, with the view of deciding the best point at which to commence the erection of a wire netting fence, which had for some years been regarded in the southern States as the most effectual method of stopping rabbits. The report was, to a certain extent, reassuring. It stated that the nearest rabbits were about 130 miles away, while to the south-west, in South Australia, they were not nearly so close.

The Act of 1880 was repealed in 1885 by one that was on somewhat similar lines, but gave more ample powers of destruction.

The authorities were evidently becoming somewhat alarmed about this time, for on a ship arriving in the Brisbane River with a solitary rabbit on board, an official was sent with orders to see the unfortunate animal destroyed.

Shortly afterwards, in 1886, the Government commenced the erection of a wire netting fence on the southern border of the State at a point sixteen miles west of the Warrego River, and the work was continued until, in 1891, the fence extended to within a few miles of Haddon Corner on the South Australian boundary (latitude 26 S.). It was afterwards extended in an easterly direction to Mungindi.

It is impossible to say where rabbits first entered Queensland from the South. Some people believe that it was near Mungindi or Wompab, while others are of opinion that they came up the Warrego River. This was in 1886. Less than five years afterwards traces of rabbits were seen 140 miles beyond the fence.

From the time of their invasion of Queensland from the South there has been continual warfare against rabbits. The limits of this paper will not permit of the narration of the measures taken in the endeavour to suppress them. Numerous Acts of Parliament have been passed, over twenty-one thousand miles of rabbit-proof fences have been erected in this State alone, and much public and private money has been expended, but the rodents continue to spread. It must not be supposed that they are always in myriads. The degree of infestation varies, and they may be very plentiful at one time in a given locality, while later on they may be scarce. Almost exterminated periodically by Nature's catastrophes in the shape of drought, bush fire, and flood, as soon as conditions are favourable they breed up again rapidly in readiness for the next "set-back."

To-day, the distribution of rabbits is approximately as shown on the map appended. They have, in a little more than sixty years, spread over an area of about 1,893,000 square miles of the territory of Australia, of which about 256,500 square miles is in Queensland. And this in spite of the efforts of man to subdue them!

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WHY THE BIRDS SHOULD BE PROTECTED.

By Mrs. F. H. HOBLER.

A lovely morning in late September! Ye gods! I drink the balmy air as I sit under a young mango-tree, whose low branches protect my retreat, and shelter me from the sun's rays, already gathering force from the coming summer. To escape from one's household duties and sit and feast on the extensive view, and study the wonderful varieties of greens, from the flowering fruit trees close by, to the light and dark shades in the valleys and on the hills, is a life worth while.

Then, last but not least, comes the call of the birds from every side. Quite close the little pardalote has her nest in the embankment, and, by the constant flying to and fro I know the pair are feeding their young. Now it is a caterpillar, now a small moth, and so on, ever busy killing the insect life till the fledglings are out in the world finding their own way—next year in all probability to be busy parents themselves. The yellow-rumped tits twitter unceasingly in the hedge close by, their nest in the fir tree is nearly completed. I watched them lately as they hopped about the rose-bush that shelters the verandah; they are fearless little fellows and would like to say to us, "We are only tiny tits, surely no one would hurt us, and see how we clear the rose boughs." Sure enough that was what kept them busy, their wee bills now here now there pecking off the aphids. What splendid little gardeners! I am told the silver-eye also does this same work,

but so far they have not appeared; it may be too early in the season. The bush canary sings on, the sweet notes being heard from all directions. A pair of double-barred finches are hopping in a bush near by. Their nest, nearly finished, is well hidden in the thickest part of that pine tree by the garden fence. A half kerosene tin, nailed to another tree, is filled with water, and, well sheltered by the waving boughs of the bougainvillea, serves both for drink and bath, and many a bird appreciates the thoughtfulness of the schoolboy who nailed it there, and keeps up the supply of fresh water.

Not far away is the grey butcher bird. He, too, thinks there is safety in this beautiful garden, so he gives a helping hand to protect the flowers. With one eye he watches me, then down he darts, but perchance my near presence has made him nervous, for he has missed his prey, one of the largest of grasshoppers. Later he may come back for another try. The beautiful little green pigeon is seldom absent—some afternoons as many as six may be counted as they busily peek here and there about the lawn, gathering seeds of weeds and grass, nor do they despise the cracked maize which so mysteriously is sprinkled about. Their colours are truly wonderful—their green backs so much resembling the grass over which they stray. Why indeed should they not be protected! Indeed it is time the catapult be abolished! Should the average boy possess one it is only in human nature that he “lets drive” at a bird rather than at an inanimate object. Only the other night we were awakened by a serimmage on the roof and the squeals of a rat which presently died away in the distance as a night-hawk flew off with its prey. These birds are ever on the alert while man takes his nightly rest, busily lessening the fields or gardens of rats and mice. Flitting near me now is the restless flycatcher, surely its wee body is set on springs, for it is never still. His curiosity brings him quite close, and he eyes me knowingly. Quite lately did one very much annoy an ardent moth collector, for as he walked carefully, the net ready to scoop up the first insect that rose, down would come master flycatcher and in many instances would carry off the prize. Even sticks did not frighten him much, for he would soon be back at his tricks. Surely the birds too are out to enjoy the spring morning: there seems no end to them. The large summer-bird now flies from bush to bush. It takes a good many grubs and caterpillars to satisfy his hunger, but he is a shy bird and

soon flies off, preferring to keep to the higher boughs. Two dollar-birds have flown over. Theirs is an unmusical note and their colouring quite out of the ordinary. One lonely jackass sits on the rose-trellis, a study in sobriety, but should any insect move below, then let it beware. The sparrows and starlings of course are to be seen, but of these I know little. I love our own native birds best, their lives seeming to be (it may be fancy) so much higher, freer, and sweeter, than those of the imported birds. Protect the birds? aye, indeed! They have enemies enough. With the closer settlement the dingo has gone back thus leaving the goanna to increase, kept down only in some districts by the poisoning for crows of dead sheep, but he is a fatal enemy to our birds, stealing both eggs and young. One instance of which I was told lately was seen by an eye-witness. They were camped for dinner, eating their sandwiches of beef and damper when from across the river came cries of distress from a hollow limb in a big gum tree. Two white cockatoos immediately appeared, screaming, and flapping their wings. Presently from out the hole crawled an immense goanna, dragging with him a half-fledged cockatoo. The repeated attacks of the parent birds presently caused the reptile to release its hold, the young bird falling to the ground, when a little later the goanna followed to recapture and devour his prey. Interference by the onlookers was impossible as the river was then running a strong current.

The domestic eat gone wild is another set back to bird life. What numbers of birds do they devour, and the young ones have no hope of escape. The quiet old squatter pigeon, which at one time was so numerous, is now almost a bird of the past—in the Central District at least. On the Downs the fox is fast demolishing the homely plain turkey, their remaining on the ground at night making them an easy victim. They are, of course, afraid of dogs, but I once watched one show fight to our sheep dog, who evidently was only on for a play, or may be thought the bird should be yarded up! It was early morning and quite close to the garden fence. Am afraid that turkey eventually landed in the oven! Where fruit is grown for sale, the birds if destroying it, must be kept down. Or often out in the back country, where little fruit is grown, and that little precious, it is necessary to keep the birds in check. I, myself, have been guilty of the death of many a pink-crested bower-bird.

One coming to the garden will bring a number of others. Emus are destroyed mostly for their offence of pear-spreading. You would exterminate the big curious bird? But what of the crow and the mountain magpie—both lovers of the pear fruit and birds of long flight? The bower and many other birds show a fondness for the pear. I hold that it is impossible and foolish to think to prevent the spread of this pest by destroying any of the feathered race. Check bird life, and where would we be? I have watched the smaller kind of black cockatoos using their beaks to tear off bits of bark from the myall trees and eagerly devouring the grubs found underneath, thus preserving the life of these trees, which are most useful for feeding stock in time of drought. Each bird, to the tiniest wren, has its mission, and how soon the little birds know they will not be harmed. Two little wrens came to our garden and stayed most of the winter, at least one did. The other, evidently the male, as darker feathers were beginning to show in his perky tail, disappeared, probably a prey to some eat or larger bird. The solitary wee mate soon learned to come on the verandah, and would hop fearlessly about near the door, picking up crumbs of bread, which we loved to throw it. The peewees, too, liked their crumbs, and would hang round the back kitchen door most of the morning. Protect the birds! Indeed we must. Nature's laws decree that the bigger feed on the lesser, and the small on the still smaller. Is man over all? Then let him see to it that he protects those which are our helpers, those feathered friends of ours who brighten our lives by their sweet happy notes, and whose constant work is in our interests. The man on the land has hard rows to plough. Nature fights him on all sides: still by way of compensation, a sop she throws in as it were, the birds, whose combined forces keep in check the insect life which otherwise would destroy all vegetable growth, would render life impossible under such circumstances. And now as I lay aside my pen there comes the soft constant call of the peaceful dove adding its voice as it were in supplication of our protection.



SOME BIRDS OF STRADBROKE ISLAND OF TO-DAY

By MRS. MAYO.

Following on Mr. Illidge's article "Birds of Stradbroke Island observed during the years 1868-1880," a few notes on the birds of the Island at the present day may prove interesting. For the last decade our holidays and odd week-ends have been spent cruising between the Brisbane River and southern end of Moreton Bay—that end of Stradbroke opposite Southport being usually headquarters during the Christmas and Easter periods. Very little of the jungle at Porpoise Point is left; humans are responsible for the disappearance of the orchids, stag-horns, and birdnest fern; and the always encroaching sand has quite covered some of the jungle towards the bar, while lots of the big trees have been undermined and washed away by the sea. Satin bird, cat bird, regent bird, and powerful owl must have gone many years ago—for I have not observed them in the ten years of my island wanderings. Bright little "yellow bob" (*Eopsaltria chrysorrhoa*) still flashes about the scrub between the shelter shed and the ocean beach, but the large-headed and hooded robins are away—though I have seen the hooded robin round Myora—but very rarely. *Gerigone albogularis* (the little native canary) has gone; but its place has been taken by the equally sweet-voiced *Gerigone cantator*—the last is to be heard amongst the mangroves and all along the foreshores of the bay. Of the honey-eaters the "little brown" *Syrmatops ocularis* and the white-cheeked (*M. sericea*) are pretty well all over the island, and I noticed them both in great numbers round the Point in October, and again in December, 1922. In the banks'ia at Curragee the singing honey-eater (*Ptilotis Sonora*) and the yellow tufted (*P. auricomis*) were very lively. Leather heads (*corniculatus*, *citireogularis*, and another kind that I have not been able to identify), together with brush wattle birds also fill the air with their breezy chatter. They are on the island all the year round. Most of the

pigeons have gone, but the little green pigeon (*C. Chrysoclora*) and the white-throated pigeon were at Porpoise Point at Christmas. But other days other manners, and neither of those birds were introduced into our stews. King quails I have not noticed, but the little brown quail (*Synoicus Australis*) was running about with her brood early in January. The kingfishers hold their own well on Stradbroke (*Azure, Macleay, Sanctus, and Sordidus*), together with jackasses and butcher birds. I have no doubt the two latter birds are largely responsible for the scarcity of the smaller bird families—they take heavy toll. Blue mountain parrots and ‘greenies’ were feeding in the banksia and honey trees in October last. They are a hard bird to see when feeding. A year or two back parrots, leather heads, and honey-eaters—a noisy throng—were feeding in great numbers on the flowering grass trees round Myora, and were easily observed. Bronze, fantailed, and pallid cuckoos still find it easy to foist their eggs on the white-checked honey-eaters—those birds have grown no wiser than their forbears. It was pathetic to see the little honey-eaters last Christmas; they worked from dawn to dark trying to fill the mouths of their foster babes.

Rainbow bird and dollar bird are always to be seen at the Point, but I have never seen the scrub magpie there. Our visits to the Island may not have coincided, for I don't think the bird a resident. Stradbroke is a happy hunting ground still for both thrushes (*harmonica* and *rufigaster*). No matter what point you touch at on the way to Southport you are sure to hear a thrush singing close at hand. One little path (near Myora) I have never walked along without seeing *harmonica* busily searching for grubs. We called the path ‘Thrush's Walk.’ I think, though, the thrushes on Stradbroke have not the varied song of the mountain birds. The pied eaterpillar-eater (*C. leucomela*) is common all over Stradbroke, is a very friendly bird, and comes down readily to a call. I do not see the white-shouldered (*C. humeralis*) so often. Peewees, p'pits, grauculus, and Willie wagtails are to be found from one end of the Island to the other. Swamp pheasants, stone, and spur-winged plovers, are all there. I wonder did the big white-bellied sea eagle (*Haliaeetus leucogaster*) nest opposite Willes's in Canaipa Passage in Mr. Illidge's day. We always see

an adult pair, and at times the buff and brown youngster, but I don't think they breed every year. The old birds used to perch for hours at a stretch on the big gum trees of the hill overlooking the water, and I won't easily forget my disgust when I heard for the first time their voices. I can't call their singing anything but quacking. I am told that this eagle does not dive for fish, but often I have observed the bird sitting drenched and miserable on a beacon or post in the bay. They did not look as though they had enjoyed the dip, so I thought they may have misjudged their distance in picking up fish and gone right in. The whistling eagle (*Haliastur sphenurus*) and white-headed sea eagle (*H. leucosternus*) patrol the mud flats between Dunwich and Amity, and nest, together with the crows and mangrove bitterns, in the big old mangroves along the shore. The oriole and figbird nest on the island, too, but I think the drongo goes to the hills to nest and only comes back in the autumn. Mr. Illidge does not mention the koel cuckoo in his list; that bird is often seen, and oftener heard, nowadays. The orange-backed wren was nesting near Roe's camp last October, and I hear the silvery blue wren is also in that locality. If so, it must have crossed the water at last. The sanguineous honey-bird is plentiful all over Stradbroke, and makes a charming colour-scheme as it hangs head down from the honey cones of the banksia bushes.

Birds observed on Stradbroke Island, opposite Southport, during three days at Christmas, 1922:—Yellow robin, grey thrush, rufous thrush, rufous whistler, little brown honeyeater, white-cheeked honeyeater and white-naped honeyeater, leatherheads, brush wattle birds, pied caterpillar eaters, gerigone cantator, white eared flycatcher (nest located by H.G.), azure, sanctus, Macleay and sordid kingfishers, white-shafted fantail, Willie Wag-tail, butcher birds (*eracticus* and *nigra*), kookaburras, peaceful dove, welcome swallows, stone plovers, spur-winged plovers, fig birds, crows, graenulous white-throated pigeon, koel and pallid cuckoos, white-headed tree runners, peewees. Of the shore birds:—Godwits, ibis, curlews, whimbrel, tern, gulls, sea eagles, herons, pelicans, egrets, bitterns, cormorants, oyster catchers, and dottrels, together with a number of snake birds.

NEW BOOK.

An Elementary Text Book of Australian Forest Botany. Vol. 1. By C. T. White, F.L.S. (Government Botanist of Queensland). Published by the N.S.W. Forestry Commission, Sydney. Price 7/6. To be completed in two volumes.

Text books on natural science subjects dealing almost entirely with Australian types are few in number. A welcome addition to literature of this description is the above work published by the Forestry Commission of New South Wales. As the title indicates the work is primarily intended for the use of forest officers and students of Australian forest schools. In the present work Australian woody plants or plants commonly cultivated in Australia have been quoted as examples of the application of botanical terms. The value of field characters is particularly stressed. A useful feature is the furnishing of the derivations of practically all the scientific terms used. The book is copiously illustrated by photographs and drawings, mostly original, and is recommended to all naturalists desirous of undertaking in any way the serious study of Queensland plant life.

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SYLLABUS OF MEETINGS, APRIL—JUNE.

- March 30—April 2.—Excursion to Beech Mountain.
April 23—Evening meeting. Reports of Excursions and Exhibits.
May 5—7.—Excursion to Mt. Glorious.
May 21.—Evening meeting. Lecture by H. A. Longman, F.L.S. (Curator, Queensland Museum), on "Extinct Animals."
June 2—4.—Excursion to Stradbroke Island (southern end), via Southport.
June 18.—Evening meeting. Lantern lecture in Geology Lecture Theatre, Queensland University, on "Mount Kosciuszko," by Prof. H. C. Richards, D.Sc.

EXCHANGES.

The following additions have recently been made to the Club's Library:—

South Australian Naturalist, Vol. IV., No. 1, Nov., 1922.

Australian Naturalist, Journal and Magazine of the Naturalists' Society of N.S.W., Vol., V., No. 4, Oct., 1922.

Manchester Microscopical Society, Annual Report and Transactions, with List of Members for 1921, September, 1922.

American Midland Naturalist, Vol. VIII., Nos. 4 and 5, July-Sept., 1922; University of Notre Dame, Indiana, U.S.A.

Scientific Australian, Vol. 28, No. 9, Dec., 1923.

United Empire, Royal Colonial Institute Journal, Vol. XIV., No. 1, January, 1923.

Ohio Journal of Science, Vol. XXII., Nos. 6 and 7.

Agricultural Gazette of Canada, Vol. X., No. 5.

Lloyd Library Bulletin, No. 21, Entomological Series; No. 1, The Biology of North American Caddis Fly Larvae, by J. T. Lloyd; 1921.

Ditto, Vol. 22; ditto, No. 2. Notes on the Biology of Some North American Species of May Flies, by Helen E. Murphy; 1922.

Queensland Museum Memoirs, Vol. VII., Pt. 4, with six plates (contains an interesting article on an Ichthyosaurian skull from Galah Creek, by Mr. Heber A. Longman, Director).

Cornell University Agricultural Experiment Station Memoirs, Nos.—

46.—A Classification of the Cultivated varieties of Barley, by R. G. Wiggins (contains some beautifully coloured plates).

49.—Biology of Ephydra subopaca (illustrated).

51.—The Hog Louse, by Laura Florence (illustrated).

52.—Studies in Pollen, with special reference to longevity, by H. E. Knowlton.

Field Museum of Natural History, Chicago, Vol. VI., No. 1, Annual Report of Director to Trustees for 1921.

Smithsonian Institute Reports.—

2635.—Rhythm in Nature, by F. W. Flattely.

2636.—Parasitism and Symbiosis in their Relation to Problem of Evolution by M. Caullery.

2637.—Local Suppression of Agricultural Pests by Birds, by W. L. McAtee (3 plates).

2638.—Occult Senses in Birds, by H. H. Beck.

2639.—Adventures in the Life of a Fiddler Crab, by O. W. Hyman (with 6 plates).

- 2641.—The Resplendent Shield-Bearer and the Ribbed Cocoon Maker, by R. E. Snodgrass, with 3 plates (two insect orchard pests).
- 2642.—Origin of Insect Societies, by A. Lameere.
- 2643.—Botanical Gardens of Jamaica, by W. R. Maxon, with 20 plates.
- Museum d'Histoire Naturelle Paris Bulletin Annee, 1921, Nos. 1, 2, 3, 4, and 7; also 1922, Nos. 1 and 2.
- McGill University Publications, Series II. Botany, Nos. 4-11.
- Aquatic Life (Baltimore, U.S.A.), Vol. VI., No. 8, Sept., 1922.
- Natural History—Journal of the American Museum of Natural History, Vol. XXII., No. 6, Nov.-Dec., 1922. (A beautifully illustrated number; contains an article on Australia's Wonderful Wild Life, by Mr. Charles Barrett, of Melbourne.)
- Hawaiian Entomological Society, Proceedings, 1921, Vol. V., No. 1, Oct., illustrated. (Contains interesting article on introduction of Australian Lady Bird into California in 1889.)
- Queensland Geological Survey Publication, No. 270; Palaeozoic Floras of Queensland, Part 1; the Flora of the Upper and Lower Bowen Series, with 9 plates, by A. B. Walkon, B.Sc.







BOOKS FOR THE NATURALIST



WE have just purchased the second section of the Library of the late JOHN SHIRLEY, D.Sc., and are now offering these books for sale individually. A Catalogue is being prepared and will be posted to anyone asking for same, in which all items will be found to be reasonably priced.

Another purchase is the Library of the late JAMES JOHNSTONE, Inspector of Schools, which, though largely Educational, covers much value to the Naturalist. Such items will be added to the Catalogue mentioned above. We are continually receiving smaller parcels, and these occasionally cover much sought for Natural History Volumes; you will, therefore, find it a good plan to let us register a list of your wants that you may have early advice of such items, should they appear.

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... The ...
Queensland Naturalist

Journal of the
Queensland Naturalists' Club
AND
Nature-Lovers' League.

"The Poetry of Earth is never dead."—KEATS.

The Author of each Article is responsible for the Statements
expressed therein.



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The Queensland Naturalists' Club

— AND —

Nature-Lovers' League.

Official Journal—The Queensland Naturalist.

☐
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☐

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MEETINGS:

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JOURNAL OF THE QUEENSLAND NATURALISTS' CLUB
AND NATURE-LOVERS' LEAGUE.

VOL. IV.

SEPTEMBER, 1923

No. 2.

PROCEEDINGS.

April—August, 1923.

Evening Meeting, 23rd April.—The principal subject was a talk by the President (Mr. C. T. White), on the flora of Bellenden Ker Ranges, North-East Queensland. Mr. White, accompanied by Mr. A. L. Merrotsy and Mr. E. W. Bick, had recently ascended the central peak of the Bellenden Ker Ranges, and collected specimens of the flora. The flora of the ranges is interesting, as it is the northern limit in Australia of several Southern types, such as *Dracophyllum* and *Drimys*, and on the other hand, is interesting as containing such Himalayan types such as *Agapetes* and *Rhododendron*. The trip was undertaken principally to collect seeds of two species of Mangosteen, viz., *Garcinia Mestoni* and *G. Gibbsae*, which grow on the ranges in abundance at altitudes from 1,700 to 4,700 feet. The seeds were desired by the United States Department of Agriculture, who are anxious to use these plants as stocks, and for hybridising purposes with the ordinary mangosteen. This latter can only be grown under definitely tropical conditions.

Exhibits at the meeting were:—Collection of coloured sands from Noosa, by Mr. Hermann; specimens of plants and mantis egg case, by Mr. Wheeler. A case of butterflies by Mr. Hledge.

Evening Meeting, 21st May.—A lecture was delivered by Mr. H. A. Longman, F.L.S. (Director, Queensland Museum), on "Prehistoric Nature," of which the following is a summary:—

Although the study of fossil bones did not sound attractive, the lecturer showed that it unveiled a large number of very wonderful organisms, and gave vivid pictures of the long panorama of extinct life which stretched back through one hundred millions of years.

Deposits on the Darling Downs showed a wealth of marsupial life. The giant *Diprotodon*, with a skull a yard in length, was the largest known marsupial. The brigalow skull, named *Euryzygoma*, was one of the most grotesque members of the mammalia, and its large cheek plates flared out on each side of its head, which was slightly wider than its actual length. Some of the giant kangaroos of the past would have easily dwarfed their successors, and in one species the fore and hind legs were almost equal. The so-called "pouched ass," *Phascogale*, was an immense wombat. The Tasmanian "Devil" and the marsupial wolf were represented by fossil relatives in Queensland. A large carnivore, known as the pouched lion (*Thylacoleo*) evidently took a heavy toll of the herbivorous marsupials, and many of the bones found with it showed the marks of its teeth.

Large crocodiles once wandered about South Queensland, and a giant lizard, allied to the monitors or goannas of to-day, was about 16 feet long. Fossil deposits showed that certain inland parts of Australia, now arid, were very fertile, and supported many forms of aquatic life. The skull of an immense horned tortoise had been found, the nearest relatives of which were fossils from Lord Howe Island and Patagonia.

The lecturer showed a number of marine fossils from Western Queensland, which lived in the Cretaceous ocean that once separated Australia into eastern and western parts. Amongst these were the fish-like lizards known as Ichthyosaurs, and a giant turtle named *Cratochelone*, which was twice the size of the largest turtles of to-day. In addition to Australian animals, a large number of slides were screened, illustrating the more remarkable fossil vertebrates from other lands. One of these, named *Tyrannosaurus*, from Hell Creek, Montana, U.S.A., was a colossal carnivorous animal, whose capacious mouth was armed with strong teeth, the skull being about 5 feet in length.

Evening Meeting, 18th June, 1923.—Professor E. J. Goddard, B.A., B.Sc., before a large gathering of members, delivered an interesting address on the geology and botany of South Africa. Professor Goddard, before his appointment at the Queensland University, held the position of Professor of Geology and Biology at the Stellenbosch University, Cape Colony, for 13 years. The different floral regions were traversed, and a large series of lantern slides shown, depicting types for a large part

familiar to Australian gardens, such as ericas, antholoyza, calla lilies, gladiolus, nerine, ornithogalum, etc. In all cases Professor Goddard correlated the geological formations with the different floral regions. A vote of thanks was accorded the lecturer, on the motion of Mr. Heber A. Longman, seconded by Mr. H. Tryon. At the same meeting a report on the ornithology of the recent Stradbroke Island excursion of members was given by (See page 43.) Mr. H. Tryon, Mrs. Mayo, Mr. Longman, Mr. W. B. Alexander, who listed about 80 species of birds. and Mr. Alder discussed the report.

Evening Meeting, 23rd July.—Mr. R. Illidge read a paper on the nymphalid butterfly, *Hypolimnias bolina nerinas* (see page 36). Dr. A. J. Turner and Mr. H. Tryon discussed the paper. Mr. W. R. Colledge exhibited a specimen of a large phasma, which was commented on by Mr. Illidge and Mr. Tryon. Mr. L. Franzen exhibited a case of homopterous insects, collected by him at Roehampton. Mr. G. H. Barker gave a few notes on the birds observed on the last excursion of the club to the One-Tree Hill area. Mrs. W. M. Mayo read a short paper on the finding of the nest of *Monarcha leucotis* at Stradbroke Island by Miss Geissmann and herself, and also exhibited specimens of two species of *Nautilus*, which were commented on by Mr. Tryon. The President (Mr. C. T. White) exhibited a number of dried specimens of plants collected on Fraser Island by Mr. R. L. Higgins, also specimens of *Rhododendron Lochae* and *Agapetes Meinzana*, collected on Mt. Spurgeon by Mr. A. L. Morrotsey. These plants had not been known previously from any other locality than the Bellenden Ker Ranges. Mr. White also showed specimens of the fruit of *Adansonia Gregorii*, the Australian baobab tree, collected in the Kimberley district, North-west Australia, where the trees were fairly common.

Evening Meeting, 20th August.—Mr. R. Illidge read three small papers on entomology, the first dealing with a new species of moth, bred by him from larvae found in the wood of *Capparis nobilis*, a small scrub tree common in South-eastern Queensland. The moth had been named by Dr. A. J. Turner as *Stypholepis hypermegas*. The second paper dealt with a series of insects associated with a large fungus, *Polyporus portentosus*, found at One-Tree Hill, on a recent excursion of members to that locality. (See page 33.) The third paper was a report on some insects seen at Cedar Creek

and D'Aguilar Range during a visit of members there in the earlier part of the year. Mr. Illidge also exhibited a case of silver-spotted Fritallaries, and the large web formed by a species of processionary caterpillar. Mr. L. Franzen exhibited a case of butterflies from the Rockhampton district, and noted on what plants the caterpillars of some species fed. Mr. W. M. Tanner exhibited a slide of radium, showing emanations. Mr. J. C. Smith exhibited, on behalf of Mr. D. Curtis, two almost perfect casts of snake skins. Mr. C. T. White (President) exhibited a series of nuts of the genus *Macadamia*, including a number of distinct forms of the common Queensland nut (*Macadamia ternifolia*), these latter including a particularly thin-shelled variety raised by Mr. J. B. Waldron, of the Upper Tweed River.

PRESENTATION.

At the special meeting held on the 27th July, to make arrangements in connection with the wild flower show and Natural History Exhibition, the opportunity was taken of presenting to Mr. and Mrs. C. G. Stevenson, on behalf of the members, a set of stainless cutlery. The President briefly referred to Mr. Stevenson's services as Honorary Secretary, first of the Gould League of Bird Lovers, and latterly of the Nature Lovers' League. Mr. J. C. Smith supported the President's remarks in praise of Mr. Stevenson, and the latter suitably responded.

BURNY VINE.

Recently, when in the scrub (rain-forest) at Upper Enngella, Tweed River, N.S.Wales, Mr. J. B. Waldron drew my attention to a vine locally known as "Burny Vine"; the long wiry stems of this plant, if they become rubbed across the bare skin when one is travelling through the scrub, leaves a mark like a burn across the skin, the skin first turns red and then brown, and finally peels off. The vine proved to be *Malaisia tortuosa* (family Moraceae), fairly common in the coastal "scrubs" of Queensland, from the Tweed River in the South, to the New South Wales border in the extreme north. I tested the truth of Mr. Waldron's statement about the plant by rubbing a young growing stem lightly across my wrist, and noticed soon afterwards the characteristic whip-like band of red across the skin,

C. T. WHITE.

A PIECE OF FUNGUS.

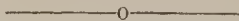
Polyporus Portentosus.

(By R. Illidge.)

This was picked up by one of us in the Mt. Cootha Reserve. It looked like a bit of dry bread thrown out from the kiosk, but a very little examination shewed it to be a piece of what is known to bushmen as "Punk," a kind of fungus which grows on the sides of gum-trees, mostly of the smooth-bark varieties, as gray-gum and spotted gum, sometimes low down, but mostly high up, out of reach. In the early days of Queensland, when bushmen carried their metal box of tinder with flint and steel, this was the usual material which formed the contents of the box. When freshly obtained, and in good condition, it has not the spongiose appearance exhibited by this fragment, but is of a soft, slightly coriaceous texture, and perhaps more like fine cork than anything else. It is extremely light, and takes fire very readily from the sparks thrown off when flint and steel are struck sharply together. The spongiose condition of this particular piece forming the subject of our remarks has been caused by the depredations of the larvae of beetles belonging to the family of the Erotylidae, illustrated herewith by seven species, five of which belong to genus *Thallis*, and two to genus *Episcaphula*. There are other species of these arboreal fungi, one of which is of a hard, woody nature, dark brown, and found at the base of stems of the scrub box, usually a very large tree. It is infested by a beetle of another family, the Tenebrionidae, in all stages, and is a species of *Byrsax*. On smooth spaces, also said to be fungoid, on the otherwise rough bark of the lower part of the same scrub-box, other tenebrionids are found, as the large and strange *Zopherosis georgii*, which has been aptly termed the iron-bark beetle, because of the hardness of its integument, which can only be pierced by steel pins, as also from its similarity to the bark of the ironbark gum, on which it is, however, not found.

Thallis insueta sometimes appears in thousands on a fungus, especially from the roots of great iron-bark and stringy-bark trees, just burnt down, whilst the ground is still so hot that it is risky to walk on. The fungus is of a jelly-like consistence, in large white masses radiating from the centre,

once the stem of the tree, and glows at night with a pale, lambent light. In company with *Thallis insueta*, but in smaller numbers, is a tenebrionid—*Typhobius* sp.



INSECTS AND BIRDS OBSERVED DURING CEDAR CREEK AND D'AGUILAR RANGE EXCURSION.

5th to 7th May, 1923.

(By R. Illidge.)

On the way to Cedar Creek to our Camp at the foot of the Range, the most noticeable fact was the lamentable absence of the prolific bird life which once frequented the scrub and adjacent forest country. The belt of scrub along the creek is now cleared off, and this accounts for the disappearance of its birds, which have either retired further afield to the mountain scrubs, or have fallen before the shot guns of the settlers, who also appear to have had no respect for such birds of the forest around, which might not only have been of value to them as insect destroyers, but also from an aesthetic point of view, cheerful companions of the monopoly of bush life in their gay and sprightly forms, charming songs, and delightful calls. Alas! there are but few left, even the peewit being scarce. I can see and hear more birds in half-an-hour in my garden at Bulimba than I did during the time spent at this camp. Another factor which must be taken into account is the parties of boys who travel up by train with shot-guns and pea-rifles, and knock over even small birds, as honey-eaters and other tiny insect-eaters, which are now supposed to be entirely protected by law. If the station-masters were instructed by their department to disallow carriage of these weapons in the trains except on special license, much assistance would be rendered "The Birds' Protection Act," and the farmers themselves grateful for abatement of what must be a nuisance.

On the day after arrival we took the road up to Mt. Glorious, the settlers' name for this part of the range. Being a somewhat large party, not much opportunity occurred for bird observation, so insect life was investigated, with very good results, especially when the lateness of the season is considered.

Insects.—The first three miles of the journey up proved a bit rough, and provided but little in the way of specimens. However, just at the turning of the road to the right for our destination, a welcome change in the soil occurred, and coleoptera were found in considerable numbers under logs. Here was obtained a fine specimen of *Trichosternus wilsoni*, a carabid of deep purple hue, especially on head and pronotum. Another carabid was the rare *Carenium brisbanense*, shining coppery in colour. In the Tenebrionidae specimens of *Seirolrana mastersi* were very numerous. On turning over the logs they looked very pretty when the sun shone upon their gilded forms. Another smaller species, near *Seirolrana repanda*, but with different elytral sculpture, was taken, usually amongst debris around small bushes. Other common tenebrionids were *Adelium nitidum*, *Cardiophorus errans*, and *Achthosus westwoodii*. A new species of *Coripera*, a single specimen, was a good find. Worthy of note was a large weevil, named *Phalidura costipennis*, a member of a remarkable sub-family of Curculionidae, the *Amycteridae*, which are peculiarly Australian, but of wide distribution therein, extending even to Tasmania and New Zealand. *P. costipennis* is singular in having a strange gular-horn, hence the few species which possess this characteristic have been called by Dr. Ferguson, "The armed-throat group." It has also large anal forceps. The female is destitute of these appendages, but is equally as large. Mr. Carroll, my companion at the time, found the latter, and I the former (the male) on the return. In butterflies, I need only note *Theclines thes miskini*, the presence of which usually indicates that *Maerozamia* grows not far away.

Birds.—Black-cheeked Falcon (*Falco melanogenys*). After lunch on top of the mount, the others going on further. I started back for camp alone, and on reaching the foot of the hill a few hundred feet on, saw a species of hawk, which I had not met with for many years, so sat down on a log watching, and presently, to my great surprise, it came and settled within twenty-feet of me. It was a fine bird, in full plumage, and evidently a male.

Beyond continuing the collecting of further beetles and noting some birds of common species, the walk back to camp was uneventful.

NOTES ON THE NYMPHALID BUTTERFLY.***Hypolimnias Bolina Nerina*, Fabr.**

By R. Illidge.

On the 17th March, 1918, I captured a specimen of this butterfly in my garden at Bulimba, which differs so greatly in colouration from any I had previously seen that at first glance whilst on the wing I took it to be a male with the round white discal spots entirely obscured. I also took another varietal form in March, 1916, and yet another in April of the succeeding year, both at Bulimba. For descriptive purposes I thought varietal names might prove useful, which together with figures on the plate, would enable any other collector obtaining similar specimens to identify them.

The first I have called var. *imperialis* from its general dark imperial purple colour, the other two *formosa*, as expressive of their richly beautiful appearance.

Imperialis corresponds except as regards colour with indicator C.—. in Waterhouse & Lyell's Butterflies of Australia; the orange dorsal patch in forewing is absent, likewise the central patch of blue in hind wing, which is replaced by a very faint tinge of silky green. Its predominating colour is dark silky purple with a coppery tinge near base and along dorsum to near tornus. The under surface agrees fairly well with the general description given in that work, but the discal bands of forewing are almost absent, and on hind-wing quite obsolete.

In var. *formosa* the middle specimen on the plate is of a general purplish black, with faint iridescent discal blue patch and small orange dorsal spot. The lower specimen has discal patch more extensive, and tawny orange dorsal patch much larger. The hind wings of the middle figure in plate have the central patch of iridescent blue rather small, whereas in the lower figure it is very much more extensive, much paler, and along the nervures paler still.

*For convenience in describing these forms in my notes, I have given them varietal names, as indicated, but

*The Butterflies of Aust. Waterhouse and Lyell. "We have intergrades between these variations, so do not regard them as sufficiently constant to warrant their being named as forms of *nerina*."

they must be considered provisional only, for the insect is subject to extreme variation in colour.

† The range of the sub-species is from Moruya, south of Sydney, to Darwin, in N. Territory. It is the largest and finest of the race.



Dimensions—plate, 66mm.; natural, 110mm.; up. fig.

Dimensions—plate, 64mm.; natural, 108mm.; mid. fig.

Dimensions—plate, 66mm.; natural, 110mm.; bottom fig.
Measurements, from centre of thorax to apex of wing, x 2.

The late Dr. Lucas brought a fine collection from Fiji, collected there by himself. They were all of brownish black, with white markings, more or less extensive. I have seen and had specimens somewhat similar from Brisbane.

Of other forms of *H. Bolina* I have had specimens from India, New Guinea, etc., and they do not compare with ours in brilliancy of colour.

‡Again Mr. Waterhouse sent me specimens obtained in Samoa. These were about the size of the figures shown on plate, which are reduced to about half the natural.

The insect has also been reported from New Zealand, and was figured in Trans. N.Z. Inst. under *Diadema nerina*, but has not been seen, so far as can be learnt, since.

Around Brisbane three distinct species of *Hypolimnas* have been found, viz.: *H. bolina nerina*; *H. alimena lamina*; *H. misippus*, Linn. Of these the first is usually very common, and in favourable seasons odd specimens are found throughout the year; the second and third are of great rarity, and after very many years' collecting, can remember but few captured, viz.: *lamina* in my own garden and odd *misippus*, usually worn at several localities near Brisbane, the male being somewhat like *nerina*, perhaps overlooked, especially if worn.

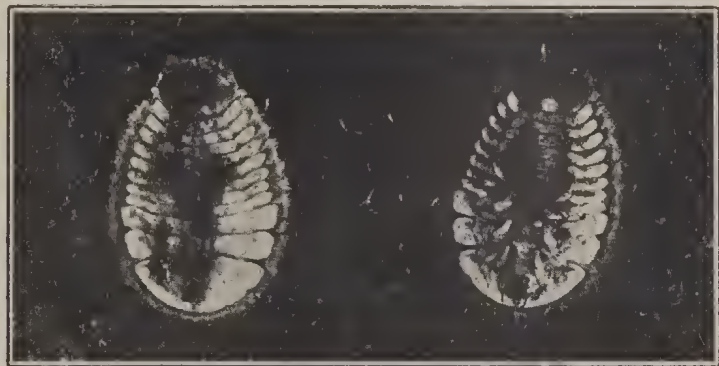
The food plant is *Sida*, species of Malvaceae. It has taken largely to the introduced *sida retusa*, and also feeds on other malvaceous plants. The larvae usually shelter during the day, though sometimes crawling over the ground amongst the *sida*. Pupa suspended by tail commonly on the lower rails of old fences, etc., which are protected by weeds.

‡*Rhopalocera* of South Qld. Notes on Seasonal Forms, etc. Qld. Naturalist, Vol. II.; No. 3, p. 36. R. Illidge.

AN INTERESTING INSECT LARVA.

(By W. R. Colledge.)

Beetles, from their structure, are of terrestrial origin, but a few enterprising species have adapted themselves to a subaqueous life. How perfectly they have succeeded was evidenced in one of our club excursions up a mountain stream. We found attached to a piece of dead submerged wood a form which puzzled us amateurs as to its identity. It measured 7 mm. by $4\frac{1}{2}$. It had the form of an oval shield, composed of twelve segments, hinged together, apparently of a calcareous nature. It was bordered by a closely set row of stiff bristles, and



Interesting Insect Larva.

Ventral aspect x 5.

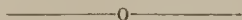
Dorsal aspect x 5.

(Photo by W. R. Colledge.)

bore a striking resemblance to the chiton, found on the rocks of our coast. But on forcing it from its resting place, it was found to be of an insectivorous nature. In the little cradle, attached by a tough skin a little below the free edges of the segments, there lay an immature form. At one end, head and antennae were tucked in, three pairs of legs protruded, and were neatly folded over the abdomen so as to add but little to its height; the anal opening was surrounded by a bunch of long tracheal tubes. From the muscular development, it was evident that water was drawn in beneath the last segment, and then exuded through paired orifices seen on the dorsal part of the segments.

The bordering bristles were closely set together, rested in sockets, and tapered gradually down to fine

points. Thus, while it could rise and crawl safely beneath its shield, yet it could sit so close, and adhere so strongly, that the turbulent currents that dash down the hill sides, could not dislodge it from its base. It was ultimately found to be the larva of one of the Parnidae, a coleopterous beetle. It may be seen sunning itself on rocks jutting from the water, and is covered by a silky pubescence. The photograph on the left shows the ventral side, and that on the right the dorsal aspect of the larvae. They are magnified about five times.



A REPUTED BLUE-FLOWERING VARIETY OF *PORTULACA BICOLOR*.

Portulaca bicolor is a small fleshy tuberous-rooted plant, usually not more than two or three inches high, that occurs both inland and on the coast in Queensland and the Northern Territory. In the original description (Ferd. von Mueller, *Fragm. Phytogr., Aust.*, 1, 171), the petals are described as 4 and yellow—"petalis quatuor lutes." In the "Proceedings of the Linnean Soc. of N.S.W., Vol. 31, p. 723," Messrs. Maiden and Betehe describe a variety, *var. rosea*, from Howell, N.S. Wales, in which the colour of the flowers is described as rose-pink, and the number of petals five or six, mostly six.

Mr. F. L. Berney, of Barcarolle, near Jundah, Western Queensland, has recently sent me specimens of a *Portulaca*, which I am unable to separate from *P. bicolor*. The following, however, are Mr. Berney's notes: "A small plant growing in a shady spot in a gidya scrub, collected in March, 1921. I have never previously come across it. It has a tuberous root, and bears a small five-pointed, star-shaped flower, pale blue in colour."

It will be noted that Mr. Berney describes the colour of the flowers as pale blue; when they reached me, however, they had turned a deep pink, and I thought it possible that Messrs. Maiden and Betehe had described their plant from similar specimens, which may have turned from blue to pink in transit. However, Mr. Maiden informs me in a letter that plants of *P. bicolor*, *var. rosea*, grown in Sydney Botanic Gardens, bore flowers of a rose-pink colour.

It is probable that *P. bicolor*, like its garden congener (*P. grandiflora*) has several forms or varieties, differing chiefly in the colours of their flowers.

C. T. WHITE.

QUEENSLAND WILD FLOWERS.

The immediate past President of the Queensland Naturalists' Club (Mr. R. L. Higgins) chose for the subject of his presidential address "The Photographer Naturalist" (vide this journal, Vol. 4 p.5). Mr. Higgins is a keen photographer of Natural History subjects; he has paid special attention to the photography of Queensland wild flowers, and the accompanying plate represents four studies by him. *Acacia fimbriata* is a



Queensland Wild Flowers.

Diuris sulphurea.*Acacia fimbriata*.

wattle very common about Brisbane, and known colloquially as the "Brisbane Golden Wattle." It occurs in Southern Queensland and parts of New South Wales. *Diuris sulphurea* is perhaps the commonest of the species of the genus in Queensland; it occurs in open eucalyptus forests and grass lands, and is particularly common in mountain localities, as Tambourine Mountain, Bunya Mountains, etc. *Boronia pinnata* is common in some of

the coastal areas of Southern Queensland, particularly Stradbroke Island. **Gompholobium pinnatum** is a species a few inches high that occurs in the forest country of South-Eastern Queensland, such as Glasshouse Mountains, Eight Mile Plains, etc.



Boronia pinnata.

Gompholobium pinnatum.

(Photos by R. L. Higgins.)

LIST OF BIRDS SEEN AT STRADBROKE ISLAND,

JUNE 3rd to 10th.,

By Mrs. Mayo, G. H. Barker, and W. B. Alexander.

Crow	King Parrot (M)
Black-throated Butcherbird (M)	Scaly-breasted Lorikeet
Collared Butcherbird (M)	Blue Mountain Lorikeet
Figbird (M)	Whistling Eagle
Red-browed Finch (M)	White-headed Sea-Eagle (M)
Leatherhead	White-breasted Sea-Eagle
Little Friar-bird (M)	Pelican
Blue-faced Honey-eater (A)	Darter
Brush Wattle-bird	Little Pied Cormorant
White-cheeked Honey-eater	Pied Cormorant
Fasciated Honey-eater (M)	Little Black Cormorant
Singing Honey-eater (M)	Lesser Frigate-bird
Brown Honey-eater	Grey Teal
Sanguineous Honey-eater	Black Duck
Spinebill	Black Swan
(?) Black-chinned Honey-eater (M)	Mangrove Bittern
Spotted Pardalote	Reef Heron (M)
Mistletoe-bird	White-faced Heron
Silver-eye	White Egret
White-throated Tree-creeper	White Ibis
Magpie-lark	Sharp-tailed Stint (M)
Singing Fly-eater	Bar-tailed Godwit
Pied Caterpillar-eater	Whimbrel (M)
Black-faced Cuckoo-shrike	Sea Curlew
Grey Shrike-thrush	Red-capped Dotterel
Rufous Shrike-thrush	Double-banded Dotterel
Rufous-breasted Whistler	Spur-winged Plover
Golden-breasted Whistler	Pied Oyster-catcher
Yellow Robin	Silver Gull
Restless Flycatcher (A)	Gull-billed Tern
Spectacled Flycatcher	Caspian Tern
Black-and-White Fantail	Crested Tern
Rufous Fantail	White-fronted Tern (M)
White-shafted Fantail	Little Tern (M)
Rose-breasted Robin	Diamond Dove (M)
Tree Martin	Peaceful Dove (M)
Welcome Swallow	Bar-shouldered Dove
Pheasant Coucal (M)	Purple-crowned Fruit Pigeon
Fan-tailed Cuckoo (M)	
Sacred Kingfisher	Black-backed Magpie heard singing on Pimpama Island
Kookaburra	
Swift Parrakeet (M)	

NATURE NOTES.

(By Mrs. F. H. Hobler.)

One hot afternoon last March I braved the heat, and set out to explore a ridge close by, and covered mostly with half-grown ironbark timber. There had been no wet season, so everything looked dry and drought-stricken. No insects to be found, evidently. Still, see, here's the large auger-shaped hole in the trunk of an ironbark, showing where one of those large heavy moths had emerged, and quite lately, too. From the first breaking of the egg, the tiny grub has bored its way into the dark mysteries of the inner wood. There it has fed and enlarged its hole as its growing needs required, living on the juice obtained as it bored, till at last the big, ugly grub is matured. Now a change takes place. Slowly it wraps itself in a brown casing—it does not die, yet it ceases to be a grub. Does the transformation cause pain or sickness? The grub is gone effectually, yet from that quiet sleep in the brown sarcophagus, as it were, emerges the living winged insect. Not a beauty by any means, but to the collector a family of intense interest.

Again the search among the trees is continued. Here in a crevice is something shiny—a hat-pin at all times is useful. A few prods and several bright beetles scuttle out; secured, they are dropped into the glass tube which contains a bit of cotton wool and chloroform. Examined, one belongs to the rather perfumed genus of *Chaleopterus*, the other is a *Paropsis* (*P. purpureo-viridis*), with bright shining tints, and one of the few of that genus that keeps its brightness. Nor is it very common, so it is a welcome specimen. In other crevices it is found again, generally in company with the ordinary black *Paropsis*, of about the same size. Here they hide from the light and from enemies. Under cover of the friendly darkness they sally forth to feed on the tender leaves of their chosen food plant.

Ants and Beetles.—On a bare patch of ground we soon find a large nest of ants. These ants need no describing. The harassed housewife knows them too well. The stockowner curses the brutes for the endless misery they cause any unfortunate animal bogged or maimed—even to man—who has lain with broken limb waiting, waiting, and the hours have been so long till succour came. But why mention ants, when beetles are the study?

Yes, but wait and observe. There, at one side in the edge of the grass, is some foreign matter. Tread quietly; it takes but little to bring an army of ants about one, which would cause retirement, with, methinks, but little dignity but much haste. We kneel and watch. This is the rubbish heap of the ants; a loose mound consisting of handfuls of dead ones, countless legs and wings of grasshoppers, beetles, etc., all carried carefully away from the proximity of the holes. Foraging among this debris are some black beetles, which are evidently obtaining a good meal, but of what, it would be hard to say. We secure as many as possible; two kinds being *Pterohelaus*, of the *Tenebrionidae* family, one of which may prove to be new. The third was a small *Trox* (*T. perhispidus*), family *Scarabiadae*. Several tiny beetles hurried themselves out of sight, and I was unable to get them. Other ants' nests were inspected with similar results. Possibly were a watch kept on these rubbish heaps through the different summer months some interesting insects could be secured. I was told of another beetle which was frequently seen, but evidently I was too late in the season for it.



SYLLABUS OF MEETINGS.

October 13.—Sandgate Lagoons. Train leaves Central Station, 1.25 p.m. Get out at Sandgate Central Station.

October 15.—Evening Meeting. Paper on Bird-life, by Mr. W. B. Alexander, M.A. Paper on the Birds of the Chelmer Swamp, by Mrs. C. A. Messmer, and on the Aquatic Life of Chelmer Swamp, by Mr. W. R. Colledge.

November 10.—Excursion to Middle Ridge, Taylor's Range (One Tree Hill). Leader, Mr. R. Hidge. Meet at Cemetery Gates at 2 p.m.

November 19.—Lecture by Professor H. C. Richards, D.Sc. (Queensland University), on New Zealand, illustrated with lantern slides. Note.—This meeting will be held in the Geology Lecture Theatre, University.

EXCHANGES.

The following is a list of journals, etc., received since the last issue of the "Queensland Naturalist." These, and all other magazines, etc., in the Club's library, are available to members, both town and country, on application to the Acting Hon. Librarian. All publications must be returned within thirty days, but the borrower may have this time extended on application, provided no other member has applied for that particular book in the meantime. Members wishing any item posted to them should enclose a twopenny stamp to defray the cost of postage. As far as possible all current exchange will be available on the table at each monthly meeting, when members may select any one required.

GEORGE H. BARKER,

Acting Hon. Librarian.

235, Albert Street.

American Midland Naturalist, Vol. VIII., Nos. 6,7: 8/9. Dec., 1922—May, 1923. University of Notre Dame, Indiana, U.S.A. (No. 7 contains an interesting article on an Amateur Wild Flower Bed—6 feet by 12.)

Australian Science Abstracts. Vol. 1, Nos. 1-2, and 3-4: Nov., 1922. Austr. Nat. Research Council, Sydney.

Australian Naturalist.—Journal and Magazine of the Naturalists' Society of N.S.W. 5th January, 1923. (Notes on the Carpet Snake, by George E. Stenson, gives many instances of how useful this harmless snake is among rabbits and flying foxes.)

Aquatic Life (Baltimore, U.S.A.). Vol. VII., No. 1. May, 1923.

Canada—The Agricultural Gazette of Canada. Vol. X., No. 3. May-June, 1923.

Caermarthshire Antiquarian Society and Field Club: Transactions of. Part XLI.

Ceylon.—Spolia Zeylanica, issued from the Colombo Museum. Vol. XII. Part 46. Covers Proceedings of Ceylon Natural History Society. May, 1923. Among several articles is a List of Mammals of Ceylon, by W. W. A. Phillips (Director of the Museum); Snakes of the Annasiquilla Estate, by Col. F. Wall.

Conchology, Journal of—Vol. 17, No. 1, Jan., 1923. An article on the Edible Molluscs of the British Isles, by E. W. Swanton, gives details of the hundreds of tons of this food that reaches the markets of the British Isles annually.

France.—Bulletin du Museum National d'Histoire Naturelle. Reunion mensuelle des Naturalistes du Museum. No. 6, 1922. Paris.

New York State Museum Bulletin; Nos. 243-4; Mar-Apr., 1921. Albany, N.Y. Report of the State Botanist for 1921.

Ohio Journal of Science (The)—Vol. XXIII; No. 2. Mar-Apr., 1923. Columbus, Ohio.

Philadelphia.—Proceedings of the Academy of Natural Sciences. Vol. LXXIX., 1922.

Contains a valuable paper, by Morgan Hebard, "Studies in Malayan, Melanesian and Australian Tettigoniidae (Orthoptera), which is illustrated by eleven excellent plates.

Queensland Geological Survey, No. 273.—Mesozoic Insects of Queensland, by R. J. Tillyard, M.A., D.Sc., and B. Dunstan (Government Geologist).—Part I., Introduction and Coleoptera, by B. Dunstan, with 2 Plans and 7 Plates. 1923.

Queensland Royal Society Proceedings for 1922. Vol. XXXIV., issued January, 1923, Brisbane.

Scientific Australian—Vol. XXIX., No. 2. May, 1923.

Selborne Magazine and Nature Notes, No. 350. June, 1922 to January, 1923. London.

South Australian Ornithologist, Vol. VII. Part 2. April, 1923. Adelaide.

Victorian Naturalist—Journal and Magazine of the Field Naturalists' Club of Victoria. Vol. XL., No. 3. July, 1923. Melbourne.

United Empire—The Royal Colonial Institute Journal. Vol. XIV. (new series). No. 5. May, 1923. London.

California—University of California Publications in Botany. Vol. 10. Nos. 6-7. Parasitic Floudeae, II., by W. A. Setchell, and a revision of the West North American species of Callophyllis, by the same author. Berkeley, Cal., 1923.

California—Vol. 10. Nos. 4-5. Notes on a Collection of New Zealand Hepaticae, by W. H. Pearson; and More New Zealand Hepaticae, by the same. Berkeley, Cal., 1923.

Some Australian Books Of Interest To Naturalists

WATERHOUSE & LYELL, Butterflies of Australia: A Monograph of the Australian Rhopalocera; with coloured and other plates, and figures in the text; 4to cloth. 42/-.

AFLALO: A Sketch of the Natural History of Australia, with some notes on sport; cr. 8vo, cloth, illustrated. 3/6.

McCULLOCH, A. R., The Fishes of N.S.W., with 43 full page plates; published by Roy. Zoo. Soc. of N.S.W. (covers Southern Queensland). 5/-.

WAITE, EDGAR R., The Fishes of South Australia, copiously illustrated (sewed). 7/-.

WOOD-JONES, FREDERIC, D.Sc., The Mammals of South Australia—Monstremes and Carnivorous Marsupials; with illustrations (sewed). 5/-.

LEACH, J. A., D.Sc., An Australian Bird Book; new revised edition; now complete for Australia, with coloured and other plates. 7/6.

DENDY & LUCAS, An Introduction to the Study of Botany, with special chapter on some Australian Natural Orders. 5/6.

WHITE, C. T., An Elementary Text Book of Australian Forest Botany, Vol. I. Morphology, Anatomy, and Physiology; illustrated. 7/6.

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VOL. IV., No. 3.

DEC., 1923

.. The ..
Queensland Naturalist

Journal of the
Queensland Naturalists' Club
AND
Nature-Lovers' League.

"The Poetry of Earth is never dead."—KEATS.

The Author of each Article is responsible for the Statements
expressed therein.



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The Queensland Naturalists' Club

— AND —

Nature-Lovers' League.

Official Journal—The Queensland Naturalist.



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MEETINGS:

Monthly Meetings are held at No. 15, First Floor,
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The Queensland Naturalist.

JOURNAL OF THE QUEENSLAND NATURALISTS' CLUB
AND NATURE-LOVERS' LEAGUE.

VOL. IV.

DECEMBER, 1923

No. 3.

PROCEEDINGS.

September—December, 1923.

Excursion, Sept. 8th-10th.—A week-end trip was made to the Glass House Mountains district, about twenty members participating. Particular attention was given to the flora of the mountains and a number of interesting plants in flower were seen. Some beautiful clumps of the fern *Polypodium rigidulum* var. *Vidgeni* were noticed. This is a beautiful form of the common Rock Fern with lobed pinnae.

Wild Flower Show and Natural History Exhibition, Saturday Afternoon and Evening, 15th September.—A special feature of this year's exhibit was the competitive display of wild flowers sent in by State schools from different parts of South-eastern Queensland. Owing to the keen competition displayed judging was found difficult, and it was decided to divide school districts into two, those north and south of Brisbane respectively. In giving awards the facilities afforded by the district as a field for gathering wild flowers were taken into consideration. Prizes were awarded as follows. Southern Division: Canungra 1, Wolfdene 2, Somme and Stanthorpe, tie. 3. Northern Division: Mullet Creek 1. Caloundra 2, Palmwoods and Pomona, tie. 3.

Interstate exhibits were received from New South Wales (a collection from the Botanic Gardens, Sydney, and one through Mrs. C. A. Messmer); Victoria (a collection from the Botanic Gardens, Melbourne); South Australia (collections from the Field Naturalists' Club and Botanic Gardens, Adelaide, respectively).

The principal contributors of Queensland wild flowers were Mr. and Mrs. Curtis (a very extensive collection

representing the wild flower flora of the Albert River district): Miss H. Geissman and Mr. Colin Geissman (a collection from Tambourine Mountains). Miss Campbell (a collection from the Tweed River). M. Hamilton, Stradbroke Island. Mesdames Curtis, Higgins, Mayo, Messmer, and White, and Misses Baird, Kelly, and Wilkie were in charge of the tables, and special thanks are due to them for the amount of work done in arranging and selling flowers.

The photographic section in charge of Mr. R. L. Higgins attracted a good deal of attention. Contributors to it were Messrs. R. L. Higgins and D. W. Gaukrodger (a collection of photographs of Western bird life), Messrs. Harvey Bros. (general natural history photographs from North Queensland), Mr. Fryar (scenic photographs), Mr. W. J. Sanderson (natural history and general photographs), Miss Campbell (paintings of native birds) and Mr. Robinson (general natural history photographs).

A very fine geological display illustrative of the mineral wealth of Queensland was staged by Mr. B. Dunstan, F.G.S. (Chief Government Geologist).

A special display of forest products was staged by the Queensland Forest Service.

Entomological exhibits were staged by Messrs. Hledge and Franzen.

Living specimens of pond life were shown under microscopes by Messrs. Colledge and Tamer, the former exhibiting a very fine series of photographic enlargements of rotifers and other microscopical inhabitants of Queensland waters.

Excursion, 13th October.—The club excursion on Saturday afternoon, October 13th, was held at Sandgate, the lagoons being the objective for the afternoon. About sixteen members took part in the excursion, and the following birds were observed:—Cormorants, darters, swamp hens, moor hens, and coots, jacanas, black-throated and ruffled grebe, one glossy ibis, sharp-tailed stints, black fronted dotterels, egret, black swans, marsh terns, white-eyed duck, teal, maned goose, white-headed stitts, and the little craik. Reed warblers and grass birds were flying in the clumps of rushes dotted about the lagoon. All the birds were easily seen and kindly identified for the club members by Mr. W. B. Alexander.

Evening Meeting, 15th October.—Mr. W. R. Colledge read a paper on the aquatic life of the Chelmer Swamp. Mr. Colledge illustrated the different forms of life by a very fine series of lantern slides, and spoke interestingly of the life histories of the pond inhabitants. Mr. W. B. Alexander exhibited a letter written by Latham, the grandfather of Australian ornithology, over 100 years ago, and also showed a volume of Latham's work on birds. A considerable number of slides, reproducing Latham's pictures of birds were screened. This early ornithological work was compiled from drawings and descriptions sent to England from Botany Bay, one of the artists being a convict. Some forty birds described by Latham cannot be identified with existing species. Mr. Alexander also screened photographs showing a bower bird's playground, and exhibited a number of playthings gathered by the bird. Other exhibits were a fine series of natural history photographs by Messrs. W. G. and R. C. Harvey, of Mackay, and the skull of a native cat by Miss Wood, of Rockhampton.

Evening Meeting, 19th November.—Professor H. C. Richards delivered an address, illustrated by lantern slides on "The Natural Features, Especially Glaciation and Volcanic Activity, in New Zealand." The relation of the Dominion to Australia, Antarctica, and the original western margin of the Pacific Ocean was indicated by means of diagrams, while the intersection of two lines of weakness in the earth crust was shown to occur about the centre of the north island. The connection with this intersection and the seismic and volcanic activity in this region was considered.

Dealing with the South Island, the present day glaciers with their characteristics and the effects of past glaciers were described and illustrated by an excellent set of lantern slides. The general nature of the Southern Alps both as to the physical and geological characters were indicated.

The greater extent of glaciation in Pleistocene times was commented upon and the relationship between this and the great development of deep lakes caused by the terminal moraines damming up the old glacial valleys was clearly shown.

Lakes Wakatipu and Manapouri, along with the others, such as Te Anau, Wanaka, Hawea, etc., have all

been formed in this way, but the two former are remarkable in having a floor at present beneath sea level.

The wonderful Milford Sound region was described, and the casual connection between past glaciation and the great and majestic beauty of this region was shown. Steep-sided valleys, fiords, hanging valleys, and grooved mountain sides all tell their history.

In the North Island, the evidence of present day volcanic activity was considered, and the work of the present day volcanoes Egmont, Ngaurahoe, Ruapehu, and Tarawera was illustrated and discussed, while the geysers, hot springs, and mud mounds of the Wairakei Valley, and Rotorua region were considered, and explanations offered as to the cause of their phenomena.

The comparatively treeless condition of most of New Zealand was discussed and illustrated by the lantern slides especially for the central Otago district, while on the other hand the great beauty of the rain forests of Nothofagus Menziesi, etc., in the Milford Sound region was admiringly commented upon.



SOME BIRDS OF THE ALBERT RIVER.

By Mrs. W. M. Mayo (Honorary Secretary, Queensland Naturalists' Club).

The Albert, a short coastal river, empties into the southern end of Moreton Bay towards Jumpin' Pin. The river is tidal for about twelve miles up, and runs through a rich agricultural district, dairying, and banana growing being the chief industries. Cedar and Canungra Creeks junction with the Albert something over twenty miles from its mouth. The usual waders, curlews, stints, whimbrel, golden plover, spurwinged plover, pied oyster catchers, and bar-tailed godwits were plentiful on the sandbanks at the river mouth. A pair of white-headed sea eagles were also seen there, and in the next reach white-breasted and whistling eagles were overhead. Beautiful birds, all three. Swamp pheasants flew awkwardly up into the mangrove trees and called to their fellows as we passed, and a white goshawk (*Astur novae-*

hollandae) made its toilet on a bare branch overhanging the water—my first acquaintance with that bird. It was kind enough to remain in view for half an hour.

Koel and pallid cuckoos were calling all day long, their insistent call grew very wearisome. Mangrove bitterns (*Buborides stagnatilis*) flew across the narrow river, while black-throated grebes and snake birds dived as our boat drew near. Little crails were dodging in and out among the mangrove bushes and roots.

A great many honey-eaters (fasciated) chattered on a little island at the junction of the Albert and Logan rivers; they did not seem to be in any number in the upper reaches. Scarlet and white-chinned honey-eaters probed the blossoming mangroves; the white-cheeked honey-eater, so plentiful and noisy on Stradbroke Island, was not to be seen on the Albert. Starlings were as far up as Yatala bridge—I did not see them beyond that. Pipits were noticed on the flat grass land in the lower reaches, and the sacred and red-backed kingfishers were there, only one of the latter to be seen, though it evidently nested there, for it flew into a hole in the bank.

Reed warblers and mangrove canaries (*G. cantator*) were very plentiful all the way along. They have very melodious songs; one never tires of hearing them. Rufous whistlers and harmonious thrushes were singing to their nesting mates—plenty of nests were visible. Pied caterpillar eaters and bee eaters were seen; further up white-shouldered caterpillar eaters nested in the tall gum trees. At Hopedale (our destination) we found a great number of birds nesting in the home paddock—friar birds, little leatherheads (*P. sordidus*), jacky winter, Macleay kingfisher, restless and leaden flycatcher, blue-faced honey-eater, mickies, black-throated butcher birds, kookaburras, sacred kingfishers. All the nesting birds kept a wary eye on the kookaburra and sacred kingfisher. They were not allowed to pay any friendly visits. I did not see the butcher bird being warned off. In the lagoon by the house, white-necked and white-fronted herons disported with black and white ibis—the sacred ibis seldom go there. A week later the lagoon was dry and the birds flown, though my hostess told me the three birds were sure to be back at the first rains. They were pretty well domiciled there.

Twice a day, oftener if times were hard, jackasses and butcher birds took possession of the porch railings and kitchen window-sill at Hopedale, and waited for their meat allowance. All was fish that came to their net—no rat, mouse, or lizard was wasted there. The only thing John (the jackass) barred was black snake. All other kinds were edible. For twelve years John has nested at Hopedale in the one tree. This year he did not fancy his old quarters, but found a tree and ant nest about fifty yards away. Just before the brood hatched out in the new home, the limb holding the old nest came down with a crash. John is evidently a wise bird.

The bean trees were in flower on the river bank, and the noise made by the flocks of parrots and leatherheads, wattle birds, and blue jays as they fed all day amongst them was deafening. Blue mountain parrots, greenies, swifts, and musk lorikeets made a great outcry. I don't know if the bean blossom honey is intoxicating, but I certainly rescued one parrot from the river in a very helpless condition. My hostess told me that at times the family have to go round and gather the parrots up and put them in safety until they recover. The birds affected are mostly young. She thinks it is a disease that attacks the wings and prevents the birds flying. I wonder?

I heard, but did not see, the Jardine caterpillar eater whilst at Hopedale, and one day on the clear side of the river a little flame-breasted robin was hunting flies—very late for a robin to be in the lowlands. There were a few whip birds in the scrub by the river, and for years. I was told, a pair of crested hawks had built in a gum tree by the lagoon. At the time of my visit it was no unusual thing to see a few peewees and black and white flycatchers perched all about one of the cows, very busily ridding it of ticks. The cattle seemed to appreciate the little attention.

NOTES ON A NEW SPECIES OF MOTH.

Fam: Schoenobiadae.

(By R. Illidge).

In August, 1921, part of a small tree—*Capparis nobilis*—was trimmed down to a single stem, and in the parts left on the ground, a few days' after cutting off small holes were noted with a quantity of sawdust issuing therefrom. These holes were thought at the time to be caused by Coleopterous larvae, but as one of the larvae ceased casting out sawdust and spun a web of bright yellowish silk, greenish-tinged, it was evidently lepidopterous in character. The parts containing these were sawn off and carefully stowed away to await development. Late in October a perfect moth emerged, and one of strange appearance. A solitary larva found in part of the tree left standing was enclosed with mosquito-net, fixed bag-like round the stem by a piece of wire, and thus an additional specimen was secured. In all, perhaps a dozen good moths were obtained, but only one proved male, and this, though similarly marked to the females, was much smaller, but may not be a proof that such is generally so. Larvae and pupae were also bottled, but the spirit (if it were such) into which they were put failed to preserve them, and left nothing but a mass of matter.

These moths were submitted to Dr. Turner, who found them to be a new species of a curious genus called *Styphrolepis*, by Sir Geo. Hampson. Dr. Turner has named and described this species *S. hypermegas*, together with another, smaller, obtained at Emerald by Mr. Barnard, as *S. peribarys*. He also noted three others from other parts of Australia, one of which he had previously named *S. agenor*, the other two having been described by the founder of the genus.

As regards the full life histories of these internal feeding insects, it is not possible, in my experience, to follow them. We know the last larval, the pupal, and imaginal instars, but cannot see those of the preceding instars, nor do we know how many ecdyses there are, or

the duration of the stadia. We can only presume, rightly or wrongly, that they are as in larvae which feed openly.

See figures of moth and its larval and pupal chambers in wood herewith.



A New Species of Moth.
(*Stypholepis hypermegas* Turn.)

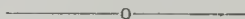
NOTES ON ROTIFERS AND SOME OF THE LIFE IN THE CHELMER SWAMP.

(By W. R. Colledge).

In former years, when the regular seasonal rains occurred in February, the Chelmer Swamp was occupied by a large area of water, and the adjacent low-lying fields were inundated, and it harboured many forms of aquatic life. Owing to the diminished rainfall of the last few years, these forms have been greatly reduced. The objects of my quest have been chiefly the Rotiferæ, other forms being noticed as they were found within my net. Of the dainty forms of the Floseularidæ, *Coronetta ornata* and *campanulata* were found. The *Melicerædæ*, *conifera*, *ringens* and *annulatus*, the second at certain times in great profusion.

The colonial Rotifers were well represented, the world-wide form of *Conochilus Volvox* being occasionally seen, and in the autumn the rare *Megalotrocha Spinoza*, discovered in China by Surgeon Gunson Thorpe. Egg-shaped colonies of *Laciniularia ovalis*, and *racemovata*, *Megalotrocha semibulla*, in very vigorous motion. Of the *Asplanchnidæ*, beautiful specimens of the *Amphora* and *Intermedia* and *Asplanchnopus Myrmelio*, *Sacculus Viridis*, *Syneheta*, *Stylata*, and *Tremula*. *Polyarthra Platyptera* appears at all times of the year. In the spring *Triarthra longiseta*, and rarely *Pedalion mirum*. Of the *Hytadinas*, fine specimens of *Notops brachionus* and *Clavulata*, as well as sturdy specimens of *Typhilus laeustris*. Of the *Notommadæ*, *Copeus copeus* and *cerberus*, *Diglena foreipata*, *Fureularia longiseta*, and *equales*. In the *Ratulidæ*, *bicornis*, *birostris*, *carinatus*, and *elongata*; also *Coelopus poreellus*. In the *Dinocharida*, *Tetractus*, *Eudactylosum*, and *longicaudatum*, *Salpina brevispina*. In the *Enchlanidæ*, *Triquetra*, and *oropha* are frequent. The *Cathypnadæ* are represented by *Luna*, *Leontina*, and *Ungulata*. The *Pterodina* by *patina* and *reflexa*. Members of the *Brachionidæ* are numerous, *angularis*, *Bakerii*, *Falcatus*, *militaris*, *Palæ*, and *Urceolus* all being found. Good specimens of the bottom feeder *Noteus quadricornis*. *Picosoma lenticulare* have also been seen at rare intervals.

In the spring occur vast quantities of ciliated Protozoa, Stentors, dark in colour, resembling animated hats, and the pale, larger variety of *Stentor polymorphus*. An interesting flatworm is common, very similar in appearance to "*Mesostoma Ehrenberghii*," and other species green, blue, and yellow in colour. Among the Cladocera the ordinary water flea is abundant, and occasionally a stout variety of *Daphnia Hyalina*, *Moina rectirostris*, *Sida crystallina*, *macothrix laticornis*, *Alona rectangulata*, *Chydorus sphericus*, *Diaptomas*, and the ever-present *Cyclops quadricornis*. In the Ostracoda, there are various species of *Cypris*. The Hydrachna, or water mites, are numerous, both crimson and green, a few belonging to the genus *Arrenurus*. As is to be expected, the Hemiptera figure largely. On the surface the little ditch skater, *Velia currens* and *Gerris laeustris* pursue their games, and occasionally on the edges near the grass, *Hydrometra stagnorum*, with its long, hair-like legs, is found sheltering itself, while in the middle depths the water boatman slides along on his back, taking deadly toll from unwary passengers. From the bottom may be fished the predaceous *Ranatra linearis*, as well as the *Corixa* and *Nauceoides*. Numerous specimens of Dipterous larva can be seen in favourable conditions from the needle-like young of the *Ceratopogon*, *Corethra plumicornis*. In the Ephemera, dragon flies, both large and the smaller *Demioselles*. The Trichoptera, or caddis flies, are not so numerous, as in the flowing waters of the creeks; but many varieties are found, carrying their curiously-built houses on their backs.



REQUEST FOR EXCHANGES.



We have received a letter from the Director of the Southwest Museum of Los Angeles, California, stating that the Museum desires to exchange specimens of diurnal Lepidoptera of the Western United States for examples from Australia. Collectors desirous of opening exchange relations should write to Dr. John Comstock, Director, Southwest Museum, 4699 Marmion Way, Los Angeles, California, United States America.

ADDITIONS TO THE LIBRARY.

The following is a list of journals, etc., received since the issue of the last number of the "Queensland Naturalist." These and all other magazines and books in the Club's library are available to members, both town and country, on application to the Acting Hon. Librarian. All publications must be returned within thirty days, but the borrower may have this time extended on application, provided no other member has applied for that number in the meantime. Members wishing any item posted to them should enclose a twopenny stamp to defray cost of postage. As far as possible all current exchanges will be available on the table at each monthly meeting, when members may select any particular one required.

GEORGE H. BARKER,

Acting Hon. Librarian.

225 Albert Street, Brisbane

A Census of the Plants of Victoria, with their Regional Distribution and the vernacular names, as adopted by the Plant Names Committee of the Field Naturalists' Club of Victoria, Melbourne, 1923.

California, University of, Publications on Botany, Vol. X., No. 3. A revision of the Californian species of Lotus, by Alice M. Ottley, with 21 plates and 10 maps. Berkeley, Cal. 1923.

Hawaiian Entomological Society. Proceedings for the year 1922. Vol. 5, No. 2., Sept., 1923.

Queensland Geological Survey, Publication No. 272, Geology of the Walloon-Rosewood Coalfield, with 24 figures and 2 geological maps, by J. H. Reid. Brisbane, 1922.

Conchology Journal for July. London, 1923.

Scientific Australian, Vol. 29, Nos. 3, 4, 5, 6. June, July, August, September. Melbourne, 1923.

Natural History Journal of the American Museum of Natural History, Vol. XXIII., Nos. 3 and 4, May-June, July-August. (As usual these Journals are beautifully illustrated, and a superb plate of Gloria Maris—most precious and beautiful of shells—appears in No. 4.)

- Aquatic Life, Vol. VII., Nos. 2, 3, 4, 5, June, July, August, and September. Baltimore, Maryland, U.S.A., 1923.
- Australian Forestry Journal, Vol. VI., Nos. 4, 5, 6, 7, April, May, June, July. Sydney, 1923.
- United Empire, Vol. XIV., Nos. 7, 8, 9, 10, July, August, September, October. London, 1923.
- (Sir Harry Wilson, K.C.M.G., K.B.E., contributes a sonnet to the July issue entitled "Bower Birds," in which he alludes to the birds decorating their "arched nests," thereby adding his name to the long list of writers who have not learned that the bower is a playing ground only, and distinct from the nest, which is invariably in a high tree, some distance away.—G.H.B.)
- Ohio Journal of Science, official organ of the Ohio Academy of Science and of the Ohio State University Scientific Society, Vol. XXIII., Nos. 3 and 4, May-June, July-August. Columbus, Ohio, 1923.
- Australian Museum Magazine, Vol. I., Nos. 9, 10, July, August. Sydney, 1923.
- Australian Naturalist, Vol. V., No. 7, July. Sydney, 1923.
- Birmingham Natural History and Philosophical Society. Annual Report for 1922, and list of Members, 1923.
- Chicago Field Museum of Natural History (213), Vol. VI., No. 2. Annual Report for 1922.
- Chicago Field Museum of Natural History (212), Vol. V., Botany. Flora of Santa Catalina Island (California), by C. F. Millspaugh and L. W. Nuttall, with 14 plates and 1 map. Chicago, 1923.
- Nebraska University Studies, Vol. XX., Nos. 3-4, Historical; Vol. XXI., Nos. 1-4 (covers the Diatoms of Nebraska, by C. J. Elmore); Vol. XXII., Nos. 1-2 (Medical). Lincoln, Nebraska, 1920/22.
- Nebraska University Studies, Science Reports, Vol. I., No. 1. A collection of non-technical papers on recent progress in science. Lincoln, 1923.
- Smithsonian Institute Reports—2685. The Department of Geology of the U.S. National Museum with 20 Plates; 2686, Natural History of Costa Rica, by R. Ridgway, with 5 plates; 2689, The Opossum (*Didelphys virginiana*), by C. Hartman, 10 plates; 2691, Botany in S.E. Asia, by A. S. Hitchcock, with 11 plates;

2692, Ant Acacias and Ants of Mexico, etc., by W. E. Safford, with 15 plates; 2693, The Fall Web Worm, by R. E. Snodgrass, with 2 plates; 2694, Collecting Insects on Mt. Rainier, by A. L. Melander, with 9 plates; 2718, On the Crinoid Family Captilloerimidae, by F. Spurger, with 5 plates; 2721, New East Indian Birds, by H. C. Oberholser; 2723, New Cetaceans from S. Carolina. Washington, 1922/3.

Western Australia, Journal and Proceedings of the Royal Society of, Vol. IX., Part I. 1922/23.

Canada, The Agricultural Gazette of, Vol. X., Nos. 4 and 5, July-August, September-October. Department of Agriculture. Ottawa, 1923.

Selborne Magazine and Nature Notes, No. 351, February to September, 1923. Edited by W. M. Webb. London, 1923.

New York State Museum, Bulletin, Nos. 247/8; 35th Report of the State Entomologist, 1921. Albany, New York, 1923.

South Australian Ornithologist, Vol. VII., Parts 3 and 4, July, October. Adelaide, 1923.

Victorian Naturalist, Vol. XL., Nos. 4, 5, 6, 7, August, September, October, November. Melbourne, 1923.

(The September issue has an interesting article on the Bunyip, by E. J. Dunn, F.G.S., which fairly conclusively proves that the common seal was the animal around which so much myth, superstition, and terror had existed for years.—G.H.B.)

Paris, Bulletin du Museum National D'Histoire Naturelle, Reunion Mensuelle des Naturalistes du Museum, 1922, No. 7; 1923, Nos. 1 and 2.

American Midland Naturalist, July-September, Vol. VIII., Nos. 10-11. Indiana, 1923.

Queensland Geological Survey, No. 274, The Geology of the Cairns Hinterland and other parts of North Queensland, by H. I. Jensen, D.Sc., with 2 maps and 13 text figures. Brisbane, 1923.

ANNUAL MEETING.

The Annual Meeting of the Queensland Naturalists' Club will be held on Monday evening, the 18th February. Members are reminded that they have the right of nominating officers and councillors for the ensuing twelve months. Nominations signed by the proposer and with the written consent of the nominee to serve if elected should be in the hands of the Honorary Secretary (Mrs. W. M. Mayo, Roseberry Street, Highgate Hill, South Brisbane) not later than Monday, the 11th February.

The retiring president (Mr. C. T. White, F.L.S.) will deliver an address on "The Myrtaceous Trees of the Brisbane District." The family Myrtaceae contains the gums, mahoganies, apple trees, tea trees, scrub cherries, etc. The address will be illustrated by lantern slides .



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VOL. IV., No. 4.

MAY, 1924

.. The ..
Queensland Naturalist

Journal of the
Queensland Naturalists' Club
AND
Nature-Lovers' League.

"The Poetry of Earth is never dead."—KEATS.

The Author of each Article is responsible for the Statements
expressed therein.



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The Queensland Naturalists' Club

— AND —

Nature-Lovers' League.

Official Journal—The Queensland Naturalist.

☐
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☐

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MEETINGS:

Monthly Meetings are held at the Brisbane Women's Club Rooms,
Albert House, C/r Albert and Ann Streets, Brisbane,
on the third Monday of every month.

The Queensland Naturalist.

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VOL. IV.

MAY, 1924.

No. 4.

PROCEEDINGS.

February—April, 1924.

ANNUAL MEETING, 18th FEBRUARY, 1924.—His Excellency the Governor (Sir Matthew Nathan), Patron of the Club, presided, and there was a good attendance of members and visitors. The retiring president (Mr. C. T. White, F.L.S.), delivered an address on the "Myrtaceous Trees of the Brisbane District." The address was illustrated by a large series of lantern slides mostly depicting the trees in the field. The officers for the ensuing twelve months were elected as set out on the cover page of this issue. The honorary treasurer (Mr. G. H. Barker), presented the financial statement for the year. The receipts totalled £94/7/7-, and the expenditure £74/8/7/, showing a credit balance of £21/19/-. The honorary librarian reported that 107 publications had been added to the library during the year, most being received as exchanges.

EVENING MEETING, 17th MARCH, 1924.—The president (Prof. E. J. Goddard), occupied the chair, and there was a good attendance. The principal business of the evening was a number of exhibits by Mr. R. Illidge. Mr. Illidge read notes on the lace-wings, on a rare neuropterous insect from Tambourine Mountain, and on noteworthy coleoptera from the National Park. Mr. Illidge also read a paper on the bronzewing pigeon. Dr. Shaw and Messrs. Alexander and Barker discussed the papers. Mr. Illidge commented on several small collections of insects made by Misses Baird and Geissmann and Messrs. J. C. Smith and R. L. Higgins and himself respectively. These were:—

By Miss Baird.—A spiral ehiton-like case of larva of a very pretty moth known as *Aristeïs hepialella*. (See

"Naturalist," Vol. III., No. 6, p. 114, Note No. 16, "Some City Moths.")

By R. Higgins.—Beetles, species of *Mastochilus* and *Anilacocorychus* in family *Paschalidae*; of *Eucare. floccosum* and *Asphalus striatus* in *Tenebrionidae*, and *Oides (Adorium) fryii*, a *Galleriad* of phytophagous habits.

In Hemiptera he also brought forward *Lygaeus hospes*, a chinch bug of destructive habits to various cultivated plants, and in Orthoptera, a small cockroach, probably young of some much larger insect in adult form. To these must be added the large ground carab known as *Trichosternus renardi*. All these from Wolvi in the Noosa district. The native bee, *Trigona carbonaria* Sm., with comb of waxy cells and young bees just emerging. A very interesting exhibit. Bee identified from Queensland Museum collection.

By J. C. Smith.—A small specimen of *Belostoma indica*, the giant water bug or fish killer (see Froggatt in *Australian Insects*). It is sometimes quite common about the street electric lights, and should be handled carefully. as its stout sharp beak stings badly.

By R. Illidge.—(1) Giant earwig from National Park, Macpherson Range. *Anisolabis colossea*—largest specimen (of 2) 65 mm. dried, somewhat larger when alive. as they have shrunk considerably. Cut out of rotten tree trunks, where it probably lives on the numerous coleopterous larvae and pupae. Seems quite harmless despite its formidable appearance.

(2) The large apterous cockroach, *Panesthia tryoni*, found in rotten logs, but whether it feeds on the decayed substance of the wood, or the living and dead larvae of other insects is at present not at all clear, probably omnivorous.

(3) *Charagia splendens* (female), and its burrow in stem.

Mr. R. L. Higgins gave a few notes on the birds of the Wolvi district. Dr. Shaw exhibited a rare and very large burrowing cockroach (*Geoscapheus crenulatus*, Shaw, ms.) from the Noosa district. Mrs. W. M. Mayo exhibited a number of sponges from Moreton Bay. Mrs. Smith exhibited a specimen of the giant maiden hair of the Queensland scrubs (*Adiantum formosum*), which had been in a vase for over two years without dropping a single pinnule. She also showed a specimen of the

bowstring hemp or *Sansevieria*, illustrative of the plant's vitality.

EASTER CAMP-OUT, 18th-21st April.—An enjoyable and profitable camp-out was held at Cowan Cowan, Moreton Island. A full account will appear in the next number of the "Queensland Naturalist."

WILD FLOWER SHOW AND GENERAL NATURAL HISTORY EXHIBITION.—In the account which appeared in the last number of the "Queensland Naturalist," among the list of exhibitors it was omitted to mention the "Queensland Museum," the officers of which staged a number of very interesting specimens, illustrative of Queensland Zoology.

QUEENSLAND NATURALISTS' CLUB.

Annual Report.

Your Council has much pleasure in submitting its annual summary of the activities of the Club during the past twelve months:—

MEETINGS AND EXCURSIONS.—Ten evening meetings were held during the year; lectures were given by Mr. H. A. Longman, on "Pre-Historic Nature," by Prof. E. J. Goddard, on "The Geology and Botany of South Africa," and by Prof. H. C. Richards on "The Natural Features Particularly Glaciation and Volcanic Activities in New Zealand." Other meetings were devoted to papers by members, to reports on excursions, and exhibits. A number of extended excursions were held during the year, the places visited being Tallebudgera, Cedar Creek, and D'Agnilar Range, Beech Mountain, Stradbroke Island, and Glass House Mountains.

Membership.—The Club at present has a membership of 126, an increase of 22 on last year.

SECRETARYSHIP.—In June last pressure of business compelled Mr. J. C. Smith, your capable Honorary Secretary, to send in his resignation from this post. Owing to Mr. Smith's energetic and unselfish work in the interest of the Club the task of finding a suitable successor was extremely difficult, but fortunately Mrs. W. M. Mayo volunteered to carry on the work, and from the amount of work she has put in since taking over office the council feels sure of success during the coming ses-

sion. Fortunately we have prevailed on Mr. Smith to carry on the work of Honorary Excursion Secretary. The thanks of the council are due to Mr. C. G. Stevenson for his work as Hon. Secretary of the Nature Lovers' League.

BIRD NUMBER, "QUEENSLAND SCHOOL PAPER."—In August your Council received a letter from the Editor of the "Queensland School Paper," asking for contributions by members of photographs and articles suitable for inclusion in the annual bird number of the School Paper. Members responded well to the request, with the result that a number of articles and photographs on the flora and fauna of Queensland were contributed.

"QUEENSLAND NATURALIST."—Three numbers of the "Naturalist" were issued during the year. It is to be sincerely hoped that the coming year will see our journal brought out regularly at the beginning of every quarter. This can only be brought about by members contributing articles more freely than at present. Country members more especially are requested to furnish articles, photographs and notes of general interest.

NATURE LOVERS' LEAGUE.—The work of the Nature Lovers' League has gone on steadily during the year. The usual rush of applications for membership by school children occurred during October.

WILD FLOWER SHOW.—A special feature of this year's exhibit was the innovation of competitive displays by State Schools. Considering this was the first year the school competitions has been featured, the results were most gratifying, a large number of schools in the south-eastern part of the State responding by sending in collections of wild flowers. Owing to the keen competition displayed, judging was found very difficult, and it was decided to divide school districts into two—those north and south of Brisbane respectively. A general account of the Flower Show, including the results of the Schools Competition, has already appeared in the "Queensland Naturalist."

LAMINGTON NATIONAL PARK.—In August a letter was received from the Beaudesert and District National Park League, asking that two members of the Club be appointed to assist in a deputation to the Premier, with a view to urging the Government to open a road to

Robert's Plateau, National Park. Messrs. G. H. Barker and J. C. Smith were appointed, but the Minister stated the Government could make no promise in regard to the matter for the present.

ACKNOWLEDGMENT.—In conclusion, the Council wishes to thank all those who helped at the Annual Wild Flower Show and General Natural History Exhibition, at the ordinary meetings, and on the excursions of the Club. We hope to see an increasing interest taken in natural history matters in Queensland this coming year. The proposed visit of the Royal Australian Ornithologists' Union to this State during next September should have a beneficial effect in this direction.

THE EUCALYPTS OR GUM TREES OF THE BRISBANE DISTRICT.

By C. T. White, F.L.S., Government Botanist.

(Portion of Presidential Address delivered before the
Queensland Naturalists' Club, 18th February 1924.)

I.

The indigenous flowering plants of Australia number approximately 10,000 specimens. The family Myrtaceae, which contains the Eucalypts or Gum Trees, contains about 700 species, and is numerically the second largest family of flowering plants, the largest being the Leguminosae, with approximately 1,100 species. The Eucalypts of Australia are estimated at about 230 species, and of these about 70 are found in Queensland, many of course being common to Queensland and the neighbouring States.

For the past few years I have paid special attention to the eucalypts of the Brisbane district, and within a ten-mile radius of the city have found 22 distinct kinds.

The eucalypts in themselves form a very natural genus of plants, but present many difficulties at any attempt to arrange the species into natural groups, each group possessing a number of characters in common. One of the main difficulties in the way of classification

is the great variability in most of the characters relied on for classification. There have been several schemes of classification published by different botanists from time to time, each scheme being based primarily on one particular feature, such as barks, anthers, fruits, chemical constituents, etc. The various schemes proposed by different botanists have been ably summarised by Mr. J. H. Maiden, in a paper, "Is *Eucalyptus* Variable?" (Journal and Proceedings of Royal Society, N.S.W., Vol. 36), and more recently in his "Critical Revision of the Genus *Eucalyptus*."

It necessarily means, however, that such schemes of classification are to a very large extent artificial, trees naturally closely allied being placed wide apart in the arrangement of the genus.

For field work, the bark characters are unquestionably the most serviceable upon which to group the species. The arrangement of the species in groups according to their bark characters was first used by Ferdinand von Mueller, and in his "Critical Revision of the Genus *Eucalyptus*," J. H. Maiden has further elaborated Mueller's system. In the arrangement which follows, I have largely followed both Maiden and Mueller, but place some of the species differently. I have not allowed the group *Hemiphloieae*, which seems to me an unnatural one that might easily lead to confusion in identifying eucalypts in the field. I have divided this present paper into parts, the first being an attempt to draw up a key suitable for field use, the other part or parts to be published in following numbers of the "Naturalist," will be devoted to descriptions, with notes on distribution, uses, etc., of each species. It must be distinctly understood that the key presented herewith refers simply to the trees as they grow in the immediate neighbourhood of Brisbane, and is not altogether applicable to the same trees as growing elsewhere. Even the bark relied on for the main groups is a variable feature, particularly in the smooth-barked trees or gums proper, where the amount of persistent bark varies very considerably; sometimes instead of falling off and leaving a smooth, clean barrel, it may be more or less persistent. Thus the Scribbly Gum (*Eucalyptus micrantha*), which normally has a smooth, clean bole, on the Darling Downs (e.g., Toowoomba, Crows Nest, etc.), carries a persistent fibrous bark on the trunk and main branches.

Variation according to geographic range has also been referred to by Luehmann in Victoria with the Manna Gum (*Eucalyptus viminalis*). Other features vary with differences in soil and moisture, as in the case of the coppice leaves of the Yellow Stringybark (*E. acmenoides*); as the tree grows in the Brisbane district the coppice leaves can easily be distinguished from those of the variety *carnea* by their texture and greater size, particularly breadth. When growing on richer soils, accompanied by a greater rainfall, as on the Blackall Range, Mary Valley, D'Aguilar Range, Mt. Lindsay, etc., the coppice leaves of typical *E. acmenoides* become much broader, though still retaining their characteristic thin texture.

The eucalypts here recorded are those occurring within a ten-mile radius of the city. I think the list is complete, but it is possible that still further collecting over the area may result in adding one or two more species to those recorded.

The only previously published list of the eucalypts of the Brisbane district is that contained in "A Census of the Flora of Brisbane," written by F. M. Bailey and J. E. Tenison-Woods, in 1879, and printed in Vol. IV. of the Proceedings of the Linnean Society of New South Wales. They listed sixteen species within a twenty-five mile radius of the city.

Group 1.—Smooth-Barked Trees, or Gums Proper.

Trunk normally smooth, the bark coming off in scales or strips, leaving a clean smooth barrel, bark commonly persistent at base of trunk and very rarely persistent for some time almost up the entire trunk—blue gums, grey gums, red gums, white gums, etc. Species 1-7.

Trunk columnar or shaft-like, bark persistent at base, the upper part ribbony, tree in the Brisbane district, only found on rich, alluvial flats associated with "scrub" (rain-forest) trees. 1. *E. saligna* (Flooded Gum).

Trunk more or less irregular, trees found on poorer soils (schists, sandstones, etc.), in typical eucalyptus country. Species 2-22.

Bark persistent on lower part of trunk, on the larger trees, markedly tessellated, with the upper part of trunk smooth and glossy; (on the

young trees the bark is not tessellated, but sub-fibrous and dark grey, and extends to the leafy branches. 2. *E. tessellaris* (Moreton Bay Ash).

Trunk usually smooth to the base. Species 3-7.

Trunk marked with indentations like bullet marks. 3. *E. maculata* (Spotted Gum).

Trunk marked always (?) with scribbly brown lines.

4. *E. micrantha* (Scribbly Gum).

Trunk rather glossy, marked with large red, blue or greyish patches, primary coppice shoots quadrangular, with leaves very broadly ovate 3-4 inches long, and mostly over two inches wide; secondary coppice leaves large, up to 10 inches long and over three inches wide; cap of flower bud elongated, $\frac{1}{4}$ - $\frac{1}{2}$ inch long, rim of seed vessel about 1 line high, valves prominently protruding. 5. *E. tereticornis* (Blue Gum).

Trunk usually dull, marked with large leaden grey patches, or for the most part dull leaden-grey in colour, coppice leaves 2-5 inches long, 1-2 inches wide, cap of flower bud 1-2 lines long, cone-shaped, capsule without a high rim, valves protruding. 6. *E. propinqua* (Grey Gum).

Trunk usually as in *E. propinqua*, coppice leaves, narrow, mostly less than an inch in width, varying considerably in length, cap of flower bud elongated, mostly about $\frac{1}{2}$ inch long, rarely shorter; capsule valves protruding, rim variable. 7. *E. Seeana* (Narrow-leaved Grey Gum).

Group 2—Boxes.

Bark dark grey, sub-fibrous, much interlocked the outer parts often shed in loose scales or patches.

Tree with typical box bark on trunk, and basal part of main branches; branches and branchlets smooth, the shed bark often hanging down in long ribbons from the forks. 8. *E. hemiphloia* (Gum-topped Box).

Group 3.—Stringybarks.

Bark very fibrous, persistent on trunk and branches, yellow, brown, or reddish, or ageing to grey, often blackened by fire. Species 9-16.

Seed capsules 1 inch long, $\frac{3}{4}$ -1 inch in diameter, usually strongly ribbed (veined), ribs simple or forked. 9. *E. Planchoniana* (Planchon's Stringybark).

Seed capsules faintly ribbed (veined), $\frac{1}{2}$ inch long and as broad at the base: the apex about $\frac{1}{3}$ inch across.

10. **E. Baileyana** (Bailey's Stringybark).

Seed capsules with 3-4 long protruding valves. 11. **E. resinifera** (Red Stringybark).

Seed capsules without protruding valves, or the valves very slightly protruding. Species 12-16.

Seed capsules depressed, globular, several sessile (i.e., without footstalks) or almost so, in a close head. 12 **E. eugenioides** (White Stringybark).

Seed capsules tapering at base into a distinct slender stalk. Species 13-16.

Seed capsule elongated, transition from capsule to stalk not very noticeable. (Bark fibres short, outer bark inclined to be lamellar). 13. **E. microcorys** (Tallow Wood).

Seed capsule round, stalk very distinct from capsule. Bark fibres long, outer bark fibres ageing to grey. Species 14-16.

Coppice leaves narrow, $2\frac{1}{2}$ -5 inches long, $\frac{1}{2}$ -1 inch wide; rarely broader. 14. **E. acmenioides** (Yellow Stringybark).

Coppice leaves broad, 4-5 inches or more long, 2-3 inches broad, rim of seed capsule very thin. 15. **E. acmenioides** var. **carnea**. (Yellow Stringybark).

Coppice leaves as in **E. acmenioides** var. **carnea**, but seed capsule with a comparatively broad (1 line thick) flattened or slightly sloping edge. 16. **E. umbra** (Yellow Stringybark).

Group 4.—Ironbarks.

Trees with hard, furrowed, black or dark grey, persistent barks, rather friable, and the interstices often carrying a dark red kino ("gum"). Species 17-20.

Leaves opposite sessile, and rounded or cordate at the base, usually covered with a bluish bloom. 17. **E. melanophloia** (Silver-leaved Ironbark).

Leaves not opposite, acute (i.e., not rounded or cordate) at the base. Species 18-20.

Coppice leaves very thick and coriaceous, large, up to 4 inches wide; adult leaves thick, coriaceous and up to 2 inches wide, cap of flower bud $1\frac{1}{2}$ inch long, seed

capsules $\frac{1}{2}$ inch in diameter. 18. **E. siderophloia** (Broad-leaved Ironbark).

Coppice leaves rather thin in texture, commonly glaucous, very rarely above $1\frac{1}{2}$ inches wide, adult leaves similar to coppice leaves, but more elongated; cap of flower bud conical, 2 lines long, seed capsule about $\frac{1}{4}$ inch in diameter. 19. **E. paniculata** (Grey Ironbark).

Coppice leaves very narrow, sometimes only $\frac{1}{4}$ inch, and usually less than $\frac{1}{2}$ inch wide, adult leaves slightly broader and usually drooping; flower and fruit small; cap of flower bud conical about one line long, capsule 2 lines in diameter. 20. **E. crebra** (Narrow-leaved Ironbark).

Group 5.—Bloodwoods.

Bark persistent, commonly inclined to be spongy and friable, and roughly and irregularly tessellated; outer layers lamellar, inner layers sub-fibrous. Species 21-22.

Seed capsules $\frac{3}{4}$ inch long and nearly $\frac{1}{2}$ inch wide at the broadest part; timber mostly red or pink, very rarely white. 21. **E. corymbosa** (Red Bloodwood).

Seed capsule $\frac{1}{2}$ inch long and $\frac{1}{4}$ inch wide at the broadest part; timber white. 22. **E. trachyphloia** (White Bloodwood).

(To be continued).

—o—

NOTES ON THE BRONZEWING PIGEON.

By R. Illidge.

This beautiful pigeon now appears to be quite extinct as regards the vicinity of Brisbane. Up to the seventies it was a common bird in several localities, and mostly favoured the south side of the river, where the thickets of wattle, interspersed with other seed-bearing plants, formed an excellent shelter and provided an ample supply of food. On the old Logan Road, then a bush track, the dejectamenta of horses proved very attractive, and a pair at least would be flushed from the droppings at every hundred yards or so, to which they would return when all was quiet again.

I have also seen odd specimens in those days, or perhaps earlier, along the same class of country above Ithaea Creek, but the only locality where one could be sure of a sight of at least a pair was at the Middle Ridge of Taylor's Range, and there the familiar noisy whirr of wings, as they rose from the ground when alarmed at approach, betrayed their presence. This Middle Ridge of Taylor's Range runs into the main range at right angles to it near the new shelter shed, and lies between the two main branches of Ithaea Creek, one of which flows down through what are now known as the Dams, whereas the other enters near the turn-off road to Paddington, below where Captain Simpson once lived on the hill above, now infested with lantana. The flats, as also the course of the creek, both above and below, consisting of rich scrub or tropical jungle, abounding in splendid bird life, amongst which were rifle, regent, satin-bower-birds, cat birds, all the beautiful species of scrub pigeons—a regal lot—dragoon-birds, mountain thrushes, log-runners, scrub turkeys, as also many smaller feathered beauties. White cockatoos abounded, as also king parrots. The rifle-bird had a disagreeably harsh call, as also the cockatoo, but the notes of many, especially amongst the smaller birds, were delightful. The calls of the karrawong (some now dub it "enrrowong." Why?) echoed around the hills with pleasing effect. Here I first heard the sharp, ringing, bell-like notes of the bell-miner (minab), now no longer existent there, though it may still be found at the head of Gold Creek. The animal life of this locality was also abundant and varied. It consisted of the large grey kangaroo, wallabies, paddymelons, 'possums, flying squirrels in several species, native bear, and other smaller marsupials; also the echidna. Dingoes also were much in evidence. The large native cat (dasyure) was also suspected, but the specimens of this which I obtained were from the head of the creek which enters Enoggera Creek in the Gap, and is in the granite country of the Enoggera Range. Where are all these animals and birds now? Gone with the splendid vegetation which clothed the country in those days.

Early experience of the bronze-wing was gained in 1864 on the Darling Downs, at Clifton, where, as a lad, I lived with an uncle at an out-station, known as Mount Kent. Here for a time we had a very dry spell, and the only water beyond a dam was obtainable at King's Creek.

over seven miles away. The birds would come every evening, sometimes in small flocks or in pairs, and settle on the ground away from the water, which they cautiously approached, and finally appeared to rush. It was the signal for the guns, and seldom less than five or six were shot, a welcome change from station diet, as they are excellent eating. In the day time these pigeons were feeding on the fallen seeds of various trees and small plants on the flat top of Mt. Kent, but were very wary and difficult of approach. The vegetation of the mountain top was very different to the forested plain below, and consisted of wattles and other leguminous plants, that of the plain bastard box mostly. I have never known the bronze-wing as a bird of the tropical jungle (scrub), but always a denizen of the thickets of wattle and other trees, and have seen and shot it most times of the year, summer and winter.

The beauty of this bird is well shown in the radiant splendour of the scapular feathers of a specimen from the Banana district of Central Queensland, which Mrs. Hobler retrieved from a cat. The coppery or golden coppery sheen is unequalled, and surely indicates a bird, probably male, in most superb plumage.

In recent years, during visits to the Jandowae district, on the Northern Downs, in February and November, December, about two years ago, I kept a good lookout for this pigeon, but did not see or hear it. The barred-shouldered dove, however, was not rare, for I frequently saw it, and was rather surprised, for I was not then aware that it wandered so far from the coastal districts, where it is a very common bird.

AMONG THE BIRDS AT REDCLIFFE.

By G. H. Barker.

Last Christmas time (1923) we were housed on the edge of the timber just behind the post-office. Our little camp stood in the centre of a 32-perch block, and was overshadowed by a fair-sized native apple or *Angophora*, on which a pair of noisy miners had built a nest and reared a family. Incidentally, they looked on the block as their domain, and everything in it, including ourselves, as there for their benefit. They were jealous owners, and waged war with all and sundry in the bird world who attempted to visit it. The sole aim in life of the youngsters appeared to be to eat, and when they were not squeaking after one or other of the parent birds, they were squeaking and foraging on their own, hunting for insects in the trees, among the grass, on our roof, in the rubbish hole, and even in the dining tent itself. They varied this by hunting among the flowers for honey. In the paddocks were a number of flowering bloodwoods and *Angophoras*, and naturally the parrots and honey-eaters sought to visit them on their rounds, but rarely got a meal in peace. One or other of the miners was sure to be about, and his angry squeaks would soon bring about the others, and a regular hue and cry would ensue, and not cease till the visitor had flown. Blueys, scaly-breasts, friar-birds, fig-birds, bluefaces, and other honey-eaters all had to go, and the only persons immune were the magpie larks on the ground, and the butcher birds on the fence. One particular family received special attention, and this was a company of babblers, who got as far as the fence regularly, but never had much success beyond that. It may be that this particular bird's comical habit of travelling round the bush in a series of happy rough and tumbles with its fellows, and just as frequent company choruses of chuckles, catealls, and whistles, reminded the miners of their own habit of friendly wrangles and noisy notes of false alarm, and caused them to regard the babblers as theatrical rivals and treated them accordingly. Anyway, the advent of the happy family was always the signal for a full roll-up of the miners and a general mix-up until the former had moved on.

It is rarely that the leatherhead can be persuaded to move on until he is ready, but in this paddock his startled "wock, wock," advertised the fact that, trailed by a miner, he was "hitting the breeze," as the cowboy puts it. Scaly breasts would endeavour to procrastinate by short flights to different parts of the trees, but once the miners realised that their hunts were not being accepted in the spirit in which they were given, direct action was resorted to, and the greenies departed hence in quick order. Among the visitors to this paddock, in addition to those already mentioned, might be mentioned, fig birds, orioles, little friar birds, blood birds, black caps, pardalotes, kingfishers, whistlers, and mistletoe swallows. One of the most remarkable features of the bird life of Redcliffe is the absence of sea birds and waders, with the exception of two or three silver gulls and cormorants and a few terns, no marine bird life was seen on the beaches. No doubt the peculiar type of foreshore, and the presence of large banks in other parts of the Bay, is the reason for this. Of the land birds, it might well be said that what they lack in variety they make up in numbers, as there were always plenty with us during our stay.

—o—

WELCOME SWALLOWS.

By G. H. Barker.

I wonder how many of our Club members, or for that matter, of the general public, have noticed that Victoria Bridge is the present hostel for all the Welcome Swallows of the Brisbane district. One night recently, as I was walking down Ann Street, from George Street towards the river, I noticed numbers of these birds hurtling along just overhead, and apparently diving over the palisades into the river. On looking over the fence I found that the swallows, on reaching the water, skimmed along its surface at a great pace, making for the third span of the bridge, where they flew up underneath the structure. I walked on to the bridge and leaned over the rail. Hundreds of swallows on the outer cable turned their little heads up to gaze at the intruder. It appears

that most of them alight on this outer cable prior to selecting a place for the night on one of the protected cables under the footbridge on the western side. Here thousands of these wonderful little fliers camp for the night. Everyone is familiar with the hissing chirrup emitted by this swallow when one of its fellows alights close to it on a rail or wire, and it is easy to imagine that this note emitted from thousands of little throats, and echoed off the water below, as neighbours bustled in alongside of those already in camp, resembled nothing so much as escaping steam from a fair-sized boiler. On another evening I visited the camp a little earlier, and was able to watch the early arrivals. I was much entertained by their gambols. Companies of them flew up and down the river, rising and wheeling as though at drill. An old barge, surmounted by a derriek, was moored to the wall at one place and the birds, firing of their drill, would make for the boat, camp along the rail, the stays, the winch, the mooring lines, and everywhere else, shoulder to shoulder, in black lines. At an imperceptible signal, the whole company, as one bird, hurled themselves off the boat in the manner peculiar to these birds when danger is around. After another short flight drill they would land on the rails along the wall, and repeat the performance. As dusk drew on sections would cease these pranks and make for the bridge, to get, no doubt, the picked positions, but it is always well after dark before late-comers and displaced early-doorites get finally settled and the hissing dies down. It would be interesting to learn from what distance birds come each night to this camp. Every evening companies pass over my house, on the ridge of Eildon Hill, and as they are heading directly for the Bridge, it can be safely stated that the Bridge Camp is their goal. I would like to hear from other members who have noticed this evening flight, if the birds are heading for the Bridge, and at what distance their station is from it in a direct line. It will also be worth watching the camp itself later in the year to ascertain when and in what numbers they migrate, and I would suggest to any of our members who use the bridge that they should keep an eye on the comings and goings of the birds, and thus be able to add to this record.

INSECT NOTES.

By R. Illidge.

(a) Notes on Psychopsidae (Lace-wings). Neuroptera.

Early in January Mr. J. C. Smith, our hon. Excursion Secretary, handed me a very beautiful lace-wing, obtained at Coominya, South Queensland. This was described by Newman, in "The Entomologist" of 1842, as *Psychopsis mimica*.

Mr. Barnard also presented me with five specimens of another species, about the same size, from Blackwater, in the Central District, Queensland, which proved new to science. These are now in the hands of Dr. Tillyard for description, with a stipulation that one specimen should be lodged in our Queensland Museum. I had previously given one to the Department of Agriculture, Brisbane, as the species of *Psychopsidae* are now known to be of great economic value in the destruction of pests, the apple moth larvae, etc.

To Mr. Franzen I am indebted for the loan of the small but rare species known as *Psychopsis cœlivagus*, from the Brisbane district.

The most remarkable of all these, however, is the large *Megapsychops illidgei*, hitherto only known from Tambourine Mountain, South Queensland, of which but few specimens have been obtained, but that now on view came from Stanthorpe, S.Q., and is in the position as when settled on a rock face, with closed wings.

(b) Notes on a Rare Neuropterous Insect of the Family Osmylidae, from Tambourine Mountain.

About two years ago I received from Mr. Colin Geissmann, of Tambourine Mountain, Southern Queensland, a neuropterous insect belonging to the family Osmylidae which was named and described in 1916 by Dr. Tillyard* *Euporismus albatrox*. The specimen then

*Proc. Linn. Socy. of N.S.W., 1916, Vol. xli., Part 1, March 29th, p. 43.

sent, after exhibition and comment thereon before the members of the Club, was deposited in the Queensland Museum. Late in February of this year Miss Hilda Geissmann forwarded two specimens, and we are thus indebted to her for a further sight of this rare and elegant insect, of which, so far, only seven specimens are known, four of which were captured whilst sitting on rocks in the river-bed of the Condamine River, above Killarney, Darling Downs, South Queensland, the other three having been taken as above stated. We have no information yet as to the life history, but can only surmise that in habits it will be found to be aquatic in the larval instars, the ultimate of which emerges from the water ere making its ecdysis as in various other neuroptera.

(c) **Parandra frenchi**, Blkbn.

Whilst collecting, in company with Mr. H. Tryon, in the National Park, Macpherson Range, we came upon some larvae and pupae of a beetle, longicorn in character, which was quite new to us. These I undertook to breed out to the perfect insect, and hence we collected a large number of both larvae and pupae for that purpose. The larvae in the last instar only, as it is useless taking them earlier, unless with huge and cumbersome sections of the logs. I was much handicapped for want of proper receptacles for breeding purposes, as it is difficult to carry sufficient material to such places as the National Park, where pack-horses are the only means of transit. However, by means of small tin cans, tobacco boxes, etc., we managed to obtain over a hundred pupae and a smaller number of larvae. With these, heavy losses were encountered through the attacks of a small black fly, which deposited its eggs in both larvae and pupae collected, the maggots from which killed them wholesale, as also the jolting on the pack-horses, so that of the perfect insects not more than a dozen arrived at maturity. These served for identification of the insect, which I took to be a species of *Spodvius*, though with much doubt, so I sent it to Mr. A. M. Lea, of South Australia, who returned the name as **Parandra frenchi**.

The chief interest outside this insect's aberrant place amongst the Prionidae in the Longicornia, is the enormous destruction amongst the hoop-pines **Araucaria Cunninghamii** when wounded or felled for timber and left lying in the damp scrub. One large piece of squared

timber, about 12in., and, say, 12ft. long, was perforated as in that herewith exhibited, and which was cut from it. The main part of the tree on the ground was in a similar state, except that this, being covered by the bark, the beetles had found it more difficult to get at, and therefore had pierced it through cracks and crannies, and the larvae had committed their depredations therefrom as a nucleus or base, thus leaving parts free of attack.

Like most other Prionidae, *Parandra frenchi* has a much larger head and prothorax in the male sex than is the case with the female. The mandibles of the male are evidently cutting instruments, and their use as such very obscure. The antennae are very short, and any one not knowing larva and pupa might well doubt their classification amongst the Longicorns.

(d) **Noteworthy Coleoptera Bred from Ultimate Larval Instars.**—Collected in the Queensland National Park, Macpherson Range.

Rhipidocerus australasiae.—Hoop-pine and other soft woods; also Antarctic Beech (*Fagus Moorei*); pupal stadium lasts ten (10) to 12 days.

Parandra frenchi. Hoop-pine; pupal stadium about 15 days.

Ceratognathus frenchi (?) .—Soft wood, fallen in scrub; pupal stadium 17 days, for 2 specimens only.

Syndesus cornutus.—Soft wood, fallen in scrub; pupal stadium about 3 weeks.

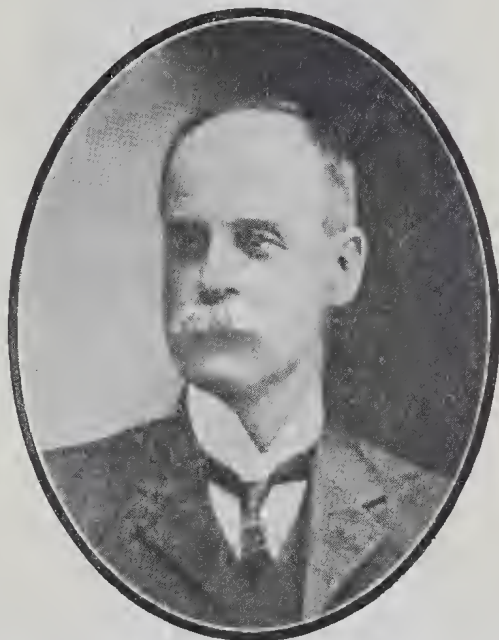
Rhyssonotus nebulosus.—Various fallen timber. pupal stadium not recorded; only one specimen survived; beetle common, however.

Eurhamphus fasciculatus.—Hoop-pine: pupal stadium, 20 days; only one specimen emerged perfect, but several others more or less in a mutilated state; no specimens were obtained more than half the size of those from the pine forests of the Gympie district.

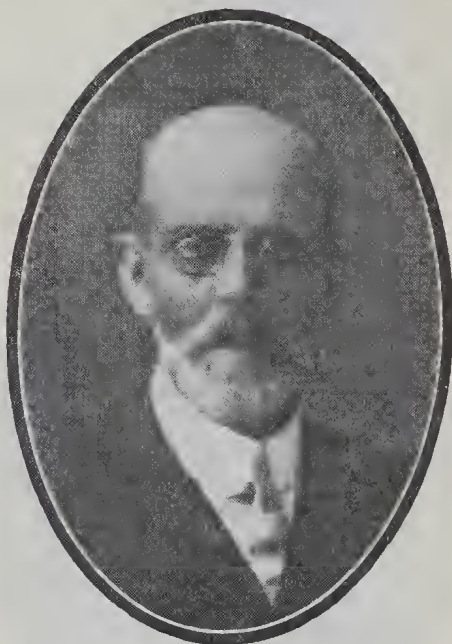
Alaus prosectus.—Predaceous on the larvae of other beetles, especially *Eurhamphus*; last larval and pupal instars have very variable stadia, sometimes of many months' duration, all through the winter months especially.

OBITUARY.

It is with great regret that we have to announce the death of two of our members.



Mr. W. M. TANNER, who was knocked down and killed by a motor car in Queen Street, was born at Carlton, Melbourne, Victoria, on the 28th January, 1857, and was thus 67 years of age at the date of his death. His sudden loss was particularly felt, as he was a most active member of the council, and our honorary lanternist for some years past. He was a keen worker generally, particularly in microscopy, and more especially aquatic life, both marine and fresh-water. He was to have accompanied the party to Moreton Island on our recent encampment there, and his death by accident a day before our departure cast a gloom over the camp. His presence at meetings will be sadly missed, as it can be truly said that he was one of the most popular members of the Club. He came to Queensland as a boy and resided at Toowoomba, Gympie, Rockhampton, and Brisbane respectively, coming to the last about twenty-three years ago.



Mr. J. WHEELER, who died on the 26th April, was born at Brighton, England, on the 23rd May, 1856, and came out to Victoria at an early age. He came to Queensland in 1899, and had been for many years a member of the Queensland Naturalists' Club. Before ill-health prevented his regular attendance at meetings and excursions he was a constant attendant and helper at most meetings of the Club and a past officer of the council. Our sincerest sympathy is extended to his widow, who is also a keen naturalist and member of the Club.

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SYLLABUS OF MEETINGS—JUNE, 1924.

May 19th.—Evening Meeting. Reports on Excursions Exhibits.

June 3.—King's Birthday (Tuesday).—All day excursion to Samford Range.

June 16.—Evening Meeting. Reports on recent excursions. Notes and exhibits.

EXCHANGES.

The Hon. Librarian (Mr. G. H. Barker) reports the receipt of the following journals since the last issue of the "Queensland Naturalist":—

Natural History—Journal of the American Museum of Natural History, Vol. XXIII., No. 6, Nov.-Dec., 1923, New York; also Vol. XXIV., No. 1, Jan.-Dec., 1924, New York.

American Midland Naturalist, Vol. IX., No. 1, January, 1924.

Agricultural Gazette of Canada, Vol. XI., No. 1., Jan.-Feb., 1924.

United Empire—Royal Colonial Institute Journal, Vol. XV. (new series). Nos. 1 and 2, January and February, 1924.

Aquatic Life, Vol. VII., Nos. 8 and 9, Dec., 1923, and January, 1924.

Milwaukee, Bulletin of the Public Museum, Vol. 4, No. 1. No. 1, 174 plates, 1-36, December, 1923.

Ethnobotany of Menomini Indians.

Victorian Naturalist, Vol. XL., No. 11, March, 1924. (Contains an article on Butterfly Collecting in Northern N.S.W., and Southern Queensland., by A. N. Burns and L. B. Thorn.)

Western Australia, The Journal of Proceedings of Royal Society of.—Vol. IX., Part 2.

British Museum of Natural History—

Economic Series, No. 12—The Cockroach: its Life History. How to deal with it, by F. Laing, M.A., 1921. Ditto, No. 13.—Mites Injurious to Domestic Animals (with an appendix on the Acarine Disease of Hive Bees), by Stanley Hurst. 1922.

Ohio Journal of Science, Vol XXIII., No. 6.

Smithsonian Miscellaneous Collections, Vol. 76, No. 5. The Telescoping of the Cetacean Skull. by G. S. Miller with 8 plates.

California University Publications in Botany. Vol. XII., No. 1.; pp. 1-16. Lichenes. a W. A. Setchell et H. E. Parks, on Insular Tahiti. a 1922 collecti.

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SEPTEMBER, 1924

.. The ..
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Journal of the
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AND
Nature-Lovers' League.

"The Poetry of Earth is never dead."—KEATS.

The Author of each Article is responsible for the Statements expressed therein.



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The Queensland Naturalists' Club

— AND —

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Official Journal—The Queensland Naturalist.

☐
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PROCEEDINGS.

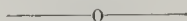
May—July, 1924.

EVENING MEETING, 19th MAY, 1924.—The president (Professor E. J. Goddard) occupied the chair, and there was a good attendance of members. The meeting was devoted principally to reports on the natural history of Moreton Island by leaders of the different sections on the Easter encampment of the Club on the island. Reports were given by Mr. H. A. Longman (general zoology), Miss H. Geissmann (birds), Mr. R. L. Higgins (photography), Mr. C. T. White (botany), Mrs. C. A. Messmer (fresh-water fish), Mr. L. Franzen (butterflies), and Mrs. Hobler (beetles). Mr. Nebe exhibited specimens of fulgurites from Moreton Island. Mr. Alexander laid on the table a list of birds observed at Enoggera on the excursion of the Club to the Enoggera Reservoir on Saturday afternoon, 17th May. Congratulations were offered to Mr. C. W. Holland, one time Hon. Secretary of the Club, on his appointment as Assistant Under Secretary for Public Lands.

EVENING MEETING, 18th JUNE.—The president (Professor E. J. Goddard) occupied the chair. Dr. E. O. Marks described the geological features of the Samford basin visited by the Club on recent excursions during May and June. Dr. Marks also described an ancient bora ring at Samford still in an excellent state of preservation. Mr. W. B. Alexander dealt with the birds observed on the recent excursion to the Enoggera Reservoir, and stressed the value to be derived from systematic observations of bird movements during the winter season. Mr. J. E. Young gave an account of a rat found by him on Moreton Island, and probably representing a new species. Mr. F. B. Coleman read a paper on "Weeds and Weed-seeds," illustrated by speci-

mens and black-board diagrams. Mr. R. Illidge reported on collections of beetles made in the Enoggera and Samford districts respectively.

EVENING MEETING, 21st JULY, 1924.—The Vice-President (Mr. J. C. Smith) occupied the chair, and there was a good attendance of members. Mr. W. B. Alexander gave a lecturette, illustrated by lantern slides, on "The Earliest Descriptions of Australian Animals." Mr. Franzen exhibited a case of insects of the genus *Stigmodera*. Photographs of Emus, showing the male bird sitting on the eggs, were shown by Mr. J. C. Smith.



FLORA OF MORETON ISLAND.

(Report on the Easter Encampment (1924) of the Queensland Naturalists' Club at Cowan Cowan.)

By C. T. White, F.L.S.

The first naturalist to botanise on Moreton Island was J. MacGillivray, who in 1847, during the voyage of the "Rattlesnake," spent a couple of days on the island; he devotes about a page in his "Narrative of the Voyage of H.M.S. Beagle" to its flora.

The island was visited nearly ten years later by Ferdinand Mueller (afterwards Baron Sir Ferdinand von Mueller) during his eighteen months sojourn in Queensland and the Northern Territory with Gregory's Expedition of 1855-6, to which he was attached as botanist.

In September, 1908, members of this club, including the present writer, spent a few days on the Island, having Bulwer, not far from our last camping place, Cowan Cowan, as headquarters; a general account of the plants collected on that occasion will be found in the pages of the "Queensland Naturalist," Vol. 1, pp. 70-73, and that account taken in conjunction with the present gives a fair idea of the flora of the north-western portion of the island. Botanising on the eastern coast and the southern end would probably add a number of names to those here listed.

Moreton Island is approximately 20 miles long and not more than 5 miles wide at the widest part. Though the rainfall is heavy (63 inches at Cape Moreton), the island for the most part consists of high sand hills (the highest 910 feet), with a dry porous soil deficient in plant food, with the consequence that the vegetation is

almost entirely xerophytic in character. For the most part the flora consists of typical Australian types; only on the beach and in the fresh-water swamps is there found a large proportion of species with a wide geographical distribution.

For the purpose of convenience the various plants might be placed in the following five ecological groups:—(1) Beach flora, (2) brackish swamps, (3) fresh water ("tea-tree") swamps, (4) peat swamps or turf-moss formation, (5) open sandy forest land.

(1) The Beach Vegetation.—The foreshores at the northern end of Moreton Island, owing to the open character of Moreton Bay, at this point present practically all the features of an ocean beach. It is noteworthy that the plants listed, with a few exceptions, are species with a wide distribution over the tropical and sub-tropical ocean beaches of the Eastern Hemisphere and some over the beaches of both the Old and the New World.

The principal trees along the beach were:—*Hibiscus tiliaceus* (Cottonwood), *Cupania anacardioides*, *Casuarina equisetifolia* var. *incana* (Coast Oak), and *Pandanus pedunculatus*. Shrubs noticed were:—*Vitex trifolia* and *Jasminum didymum*. Trailing sand-binders were:—The universal *Ipomaea Pes-caprae* (Goats Foot Convolvulus), so common along tropical beaches as to have suggested the name "Pes-caprae formation" for the vegetation of such almost all over the tropics; other plants with a wide distribution over the tropical foreshores of the world were:—*Vigna lutea* with yellow, and *Canavalia obtusifolia* with large purplish pea flowers respectively; *Acacia longifolia* var. *Sophorae*, also common, is more typically Australian, its prostrate stems of 10-12 feet trailing over the sand. *Stephania hernandiaefolia* was common just behind the sand dunes, as was *Hibbertia volubilis*. These plants and some others in the Australian flora seem to be equally at home on sandy beaches as in rich tropical and sub-tropical rain-forests, two habitats the absolute antithesis of one another as far as conditions for plant life are concerned.

Sand-binding grasses were represented by:—*Spinifex hirsutus*, *Zoysia pungens* (Coast Couch), *Ischaemum triticeum*, *Paspalum littorale* (usually occurs in brackish swamps, but a clump was here seen growing under the shade of a *Casuarina* tree; and *Lepturus repens*. Succulent plants practically always are a feature of beach floras, and on Moreton Island were represented by:—

Cakile maritima, *Sesuvium portulacastrum*, *Tetragonia expansa* (New Zealand Spinach), *Mesembryanthemum aequilaterale* (Pig Face), *Scaevola suaveolens*, and two spurges *Euphorbia atoto* and *E. eremophila*.

Other plants seen growing on the beach were:—*Oxalis corniculata* (Wood-sorrel), *Sonchus maritimus*, *Wedelia biflora*, and *Salsola Kali*.

(2) Brackish Swamp off the Coast.—In a small brackish swamp off the coast were seen a few trees of the White Mangrove (*Avicenna officinalis*), the only mangroves observed along the coast; at the southern end of the island. I believe more are to be found. The other plants growing in the swamp were:—*Eclipta alba*, *Crinum pedunculatum*, *Juncus maritimus* (Maritime Rush), *Scirpus nodosus*, *Fimbristylis ferruginea*, *Paspalum littorale*, and *Sporobolus virginicus*. Twining round the *Juncus* were *Vigna luteola* and *Vincetoxicum carnosum*.

(3) Fresh Water Swamps.—Lying close in from the beach are very large fresh-water swamps. The outstanding tree of these swamps is the common Paper-barked or Broad-leaved Tea Tree (*Melaleuca leucadendron* var. *viridiflora*). Wherever the tea tree grew the ground was covered with the Bungwall Fern (*Blechnum cartilagineum*). Other ferns present were the so-called Climbing Maidenhair (*Lygodium scandens*), and the small *Lind saca ensifolia*. In some parts the tea tree is displaced by the Swamp Oak (*Casuarina glauca*). Other trees were *Eucalytus tereticornis* (Queensland Blue Gum) and *Eucalyptus robusta* (sometimes called Swamp Mahogany). The trees of these coastal swamps have to withstand special conditions very unfavourable to plant growth, i.e., periods of inundation alternating with those of comparative drought; the water possibly is not very congenial to them also, so that they are mostly xerophytic in habit with tough leathery commonly vertically placed leaves; some such as the Blue Gum and Tea Tree can adapt themselves to the ordinary Australian forest conditions. *Melastoma malabathricum* is a common shrub of the coastal swamp: it is known to Queensland children as "Blue Tongue," as the fruits when chewed stain the mouth a bluish-black all over. A few plants of the large swamp orchid *Phaius grandifolius* were seen, and from a lagoon at the northern end of the island one of our party brought back to the camp a few flowers of the Blue Water Lily (*Nymphaea gigantea*). In the wetter parts where the water was more permanent *Triglochin procera*,

various sedges and Restiaceae were found growing, the commonest being: *Lepironia mucronata*, *Gahnia psittacorum*, *Cladium mariscus*, and *Hypolaena lateriflora*. The water grasses *Paspalum scrobiculatum* and the common Reed (*Phragmites*) were also growing. In the drier parts of the swamps *Themarthria compressa* and *Ischaemum australe* were common grasses.

(4) Peat Swamps or Turf-Moss Formation.—Lying for the most part a little further inland than the fresh-water swamps, separated from them by low sandy tracts, and lying at the base of the first large sand-hills are large areas of peat swamps. *Sphagnum* moss was noticed in the area, but not to a very great extent, and other plants no doubt enter mostly into the formation of the peat. Though the peat-swamp is for the most part very wet and contains large bodies of more or less permanent water, for some reason not definitely understood, the water is not agreeable to the plants; this taken with the fact that the peat itself is poor in plant food material means that the plants growing on the peat-swamps are xerophytic (i.e., adapted to arid conditions).

The peat-swamps of Moreton Bay and South-eastern Queensland generally possess a great many flowering shrubs and undershrubs, and during the spring months are usually gay with wild flowers. These include, more particularly, many Leguminosae, Myrtaceae, Eparidaceae, and Proteaceae of genera endemic in Australia. Restiaceae and Cyperaceae are also usually well represented.

The flowering shrubs seen were: *Notus lanigera* (mostly in the edges of the swamp and covered at the time of our visit with yellow flowers), *Leptospermum citriodorum* (Citron-scented Tea Tree), *Baeckea stenophylla*, *Sprengelia Ponceletia*, and *Epacris microphylla* (in full flower) *Pimelea linifolia* was common in the swamp, growing as an upright woody plant 2-3 feet in height.

Parasitic on the *Leptospermum* was *Cassytha glabella*. Twined round the shrubby vegetation were *Adras-taea salicifolia* and *Marsdenia Fraseri*.

Insectivorous plants always more or less characteristic of Peat-swamps ("High Moors") in all parts of the world were represented by the sundews *Drosera binata* (a handsome species with comparatively large white flowers) and *Drosera spatulata* with its small rosettes of reddish leaves. The swamp Grass Tree (*Xanthorrhoea hastilis*) was common. A few plants of *Burmannia* dis-

ticha were seen in flower. Restiaceae were represented by *Restio dimorphus*, *R. gracilis*, *Lepyrodia scariosa*, and in the wetter parts *Hypolaena lateriflora*. Lycopods seen were *Lycopodium cernuum* and *L. laterale*, and in patches the coral fern (*Glencenia circinnata*) was very abundant.

(5) **Open Forest Land.**—The forest lands of Moreton Island are sandy throughout, and only species capable of growing in comparatively barren soil can hope to flourish. The trees, shrub and vegetation generally consist of typical Australian plants for the most part represented by species, and in many cases genera not found, or at least to only a limited extent, outside Australia. The principal larger trees were: *Eucalyptus corymbosa* (Bloodwood), *E. micrantha* (Scribbly Gum—in full flower), *E. Planchoniana*, *E. pilularis* (Blackbutt), *Tristania conferta* (Box), *Acacia Cunninghamii*, *Banksia integrifolia* (White Honey-suckle), and the two almost indistinguishable Red Honey-suckles (*B. aemula* and *B. serrata*), *Casuarina suberosa* (She Oak), *Callitris arenosa* (Sand Cypress), and the Red Ash (*Alphitonia excelsa*).

In a forest pocket where conditions were slightly better for growth were some very large trees of an *Angophora*, which I have placed provisionally as *A. Woodsiana*, but to what extent this species differs from the typical *A. lanceolata* has yet to be proved. In more sheltered gullies were seen a few trees of *Eugenia cyanocarpa* and *Endiandra Sieberi*. On the forest trees the following species of Mistletoe were observed: *Loranthus* congener (on *Casuarina*), *L. pendulus* (on *Eucalyptus*), and *L. celastroides* (on *Banksia*).

Smaller trees were represented by: *Leptospermum stellatum*, *Baeckea stenophylla*, *Monotoea* sp (aff. *M. scoparia*), *Exocarpus eupressiformis* (Native Cherry), and *Persoonia media* (Geebung)—a few plants of this last were among the few species growing on the large sand-desert behind Tangalooma, and its roots were found extending for a distance of nearly a hundred feet just under the ground surface and here and there exposed to the drifting sand; this wide-spreading root system, adapted to take advantage of passing showers and heavy dews, is characteristic of a number of plants of arid regions.

Shrubs and sub-shrubs of the open forest were: *Elaeocarpus cyaneus*, *Zieria laevigata* var. *laxiflora*, *Boronia ledifolia* var. *rosmarinifolia*, *Olax retusa*, *Dodonaea triquetra* (Hop Bush), *Pultenaea villosa*, *Acacia juniperina*, *A. suaveolens*, *Phyllota phyllicoides*, *Dillwynia ericifolia*,

Gompholobium virgatum, *Homoranthus virgatus*. *Myrtus tenuifolia* var. *latifolia*, *Asterolasia longifolia* and var. *glabrescens*, *Siebera ericoides*, *Leucopogon ericoides*, *L. virgatus*, *L. margarodes*, *L. lanceolatus* var. *gracilis*, *L. leptospermoides* (?), *Lysinema pungens*, *Epacris pulchella*. *Leptomeria acida*, *Ricinocarpus pinifolius* (Wedding Bush), *Strangea linearis*, *Petrophila sessilis*, *Lomatia silaifolia* and *Conospermum taxifolium*. A Grass Tree (*Xanthorrhoea* sp. aff. *X. quadrangulata*) was abundant.

Smaller Woody plants and herbaceous ones making the remainder of the vegetation were:—*Hibbertia volubilis*, *H. acicularis*, *H. linearis*, *Viola hederacea*, *Crotalaria linifolia*, *C. Mitchellii*, *Glycine clandestina*, *G. tabacina*, *Hardenbergia monophylla*, *Tephrosia filipes*, *Cassia mimosoides*, *Bossiaea heterophylla*, *B. ensata*, *Gompholobium*, *pinnatum*, *Desmodium*, *rhytidophyllum*, *Rubus parvifolius*, *Pomax umbellata*, *Helichrysum apiculatum*, *Vernonia cinerea*, *Erechthites quadritentata*, *Cassytha pubescens*, *C. paniculata* var. *remotiflora*, *Amperea spartioides*, *Poranthera microphylla*, *Commelina lanceolata*, *Patersonia sericea*, *P. glabrata*, *Smilax australis*, *S. glycyphylla*, *Dianella laevis*, *Tricoryne elatior*, *Xerotes longifolia*, *Leptocarpus tenax* (a Restiad), and the following Cyperaceae:—*Fimbristylis barbata*, *Cautis flexuosa*, *Cyperus cnervis*, *Schoenus calostachyus*, and *S. nitens*; and the following grasses:—*Anthistiria imberbis* (Kangaroo Grass), *Panicum leucophaeum*, *P. parviflorum*, *P. marginatum* var. *striatum*, *Axonopus semialatus* (Cockatoo Grass), *Aristida calycina* (a three-pronged Spear Grass), *Andropogon refractus* (Barbed Wire Grass), *Imperata arundinacea* (Blady Grass) and *Eriachne pallescens*.

The Ferns were represented by two species of the xerophytic genus *Schizaea*, namely, *S. dichotoma* and *S. bifida*. In more favoured places the Mountain Bracken *Davallia dubia* was abundant.

Introduced Plants.—A few introduced plants have been brought to the island by various agencies and become sub-spontaneous. A few of the appended list are natives to Queensland, but I believe recent introductions as far Moreton Island is concerned. The list is:—*Sida rhombifolia* (*Sida retusa*), *Oenothera* sp. *Erigeron canadensis*, *Tagetes glandulifera* (Stinking Roger), *Opuntia inermis* (Prickly Pear), *Lantana camara*, *Solanum nigrum*, *Amarantus viridis*, *Chenopodium ambrosioides* (Wormseed), *Chloris Gayana* (Rhodes Grass), *Panicum distachyum*, *Cynodon dactylon* (Couch Grass), and *Eleusine indica* (Crow's-foot Grass).

A FEW NOTES ON THE GEOLOGY AND PHYSIOGRAPHY OF MORETON ISLAND.

By Dr. E. O. Marks, B.A., B.E.

Our Easter excursion to Moreton Island would make a geologist anxious for the examination of solid rocks, sympathise with the walrus and the carpenter at seeing such quantities of sand. Solid rocks occur at Cape Moreton, but Cowan Cowan was too far away to allow of a visit to this, and during our trip we saw no solid rock, only sand. In spite of this the excursion was of considerable geological interest, for we were examining what must be among the highest sand-dunes in the world. Mt. Tempest, the highest point of the island, is, according to the survey map, 910 feet high, and is all sand, or at any rate there is no indication of any solid rock on the surface so far as we could see.

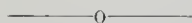
The topography of the island is very interesting, the hills being variable in outline and sometimes very steep; the hollows both V-shaped valleys and wide basins.

Seen from the summits the V valleys give one the impression of being the result of denudation, but a closer examination shows this not to be the case, for there is no evidence in the valley bottoms of anything in the nature of a stream, while many of the valleys are blind, having no outlet. There was no sign of water having ever collected, and the whole island, so far as we saw it, appears to act like a gigantic sponge absorbing all the rain falling on it. This apparently oozes out to the many swamps near sea level at the margin of the island. At low tide the water oozing from the beach is in many places fresh or only slightly brackish. That the form of the hills is frequently unlike the usual rounded dune is probably due to the vegetation anchoring irregularly what otherwise would have been drifting sand.

Several loose fragments of a coarse silicified sandstone were found, mostly having one side somewhat rounded. It was suggested that these had probably been brought there by the aborigines for grinding fern roots. No possible local origin for them was observed and they were formed of a much coarser sand than the sand composing the island.

A visit was paid to the sandy desert, an area of bare sand, about half a mile square, behind Tangalooma lighthouse. This is noted for the occurrence of fulgurites, some of which we were fortunate enough in obtaining.

Where the fulgurites are found the sand is somewhat yellowish, stained by feruginous or other salts, and this suggests itself as being a possible cause for the lightning devoting particular attention to the one spot, on account of greater conductivity or dampness. There are some blackened remnants of vegetation showing that this area had not always been the bare sand it is at present.



NOTES ON LAND VERTEBRATES.

By Heber Longman.

When seen across the sun-lit waters of the Bay, Moreton Island presents an interesting picture of white sand alternating with green foliage. It was our pleasant privilege to spend the few days of Easter-time among the dunes, swamps, and shores of this large island, so frequently seen but seldom visited. According to official figures, Moreton Island is twenty miles in length and five miles broad at the northern end, while the area is given as 45,760 acres. The height of Mount Tempest, which slightly overtops adjoining ridges, is given as 910 feet, and those naturalists who climbed its steep sides on a warm day are not inclined to lessen the figure.

Cape Moreton, Moreton Island, and Moreton Bay form a triple homonymy associated with the explorations of Cook and Flinders. In May, 1770, Captain Cook passed and named Cape Moreton, thinking it a prominence of the mainland, and when Flinders, twenty-nine years later, found it to be a part of an island, he gave the name to the whole area. To the aborigines the island was known as "Moorgumpin," and according to George Watkins, who published an interesting account in the Proceedings of the Royal Society of Queensland for 1891, the "Boorgammay" tribe, as the Moreton Islanders were called, spoke a very distinct dialect (Gowar). He also quotes Major Lockyer's record in a diary of 1828 of a black dingo in Moreton Bay. At present there are no Aborigines on Moreton Island, but we found around the swamps several fragments of the large pounding-stones, which were used to crush the "bungwal," the roots of *Blechnum serrulatum*, a common article of food.

Several traces were seen of the wild pigs, descended from domesticated animals introduced in earlier years. A complete skull was found, and Master Edwin Palmer presented some fine tusks to the Queensland Museum.

The same lad also secured an interesting bat, *Taphozous flaviventris*, which is by no means common. The ventral surface in this specimen was pure white. A skull of the common "flying-fox," *Pteropus poliocephalus*, was also picked up, but as this large, winged mammal has considerable powers of flight it was probably a visitor from the mainland.

Mr. J. Edgar Young, who is doing some very useful collecting for the Museum, trapped three specimens of buffy-brown rats, allied to, but apparently distinct from *Rattus conatus* of the mainland. These specimens were all males, and it is hoped that females will be obtained later, but the material represents an interesting addition to the fauna of Queensland.

The writer obtained a live specimen of a carpet snake, 8 feet 8 inches in length, which looked as though its island diet was somewhat meagre. This was an unusual variety of this common and variable python, being light brown, with somewhat regular dark cross-bands. No other snakes were seen.

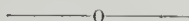
Among the lizards obtained were live specimens of the "Lance-head," *Lialis burtoni*, a snake-like reptile that usually pays the penalty for its resemblance, and of the common "Jew" or Bearded Lizard, *Amphibolurus barbatus*. Both these lizards are common species and extend from West Australia to the Queensland coast.

Diporophora australis, one of the smaller dragon lizards, was also obtained, this being a common mainland species. A single specimen was obtained of a small skink in the *Lirolepisma* group of *Lygosoma*, and this is probably new to science, but further material is necessary before satisfactory work can be done. The same statement applies to a single, mutilated specimen of *Ablepharus*.

In 1915, Mr. W. W. McMillan, who was then stationed at Moreton Island, forwarded a tiny, snake-like skink, which proved to be the very rare *Lygosoma truncatum*. This was described in 1876 as *Coloscineus truncatus* by Peters from a single specimen collected at Peel Island, Moreton Bay, during a visit of the S.M.S. "Gazelle" of the German Navy in 1875. Apparently only these two specimens of this elusive lizard have been secured.

It is obvious from the two or three distinctive species noted above and from the presence of the unique "Moreton Bay Sun-fish," *Rhadinocentrus ornatus*, Tate Regan (described elsewhere) that the fauna of this large island

will repay further study. It is hoped that opportunities will occur later for more systematic collecting of the land vertebrates. Although bandicoots are said to occur, none have yet been obtained, and it is probable that any of the larger marsupials that were isolated on the island in the past were exterminated by Aborigines.



NOTES ON A RARE ATHERINE (*Rhadinocentrus Ornatus*) FOUND UPON MORETON ISLAND.

By Mrs. C. A. Messmer.

Knowing that the little known *Rhadinocentrus ornatus* was discovered on Moreton Island in 1914 and then lost sight of, I was pleased to have the opportunity of hunting him up again, offered by the Club's Easter camp out, if he were still to be found there.

I found them in large numbers not only in the pond originally mentioned, but also in many clear, swiftly-running streams draining out of the swamps in the vicinity of Cowan Cowan lighthouse. I took them all from that part of the stream which adjoins the brackish waters draining out across the beach, but which is still fresh. This fish, which so far has proved to be confined to Moreton Island alone, was discovered in 1914, when the six type specimens were accidentally come upon by the late Mr. Ogilby amongst other fish sent up by Mr. Palmer of the signal station.

Three went into the Queensland Museum and the others to London, where they were described by C. Tate Regan. The description refers only to the dimensions, and nothing whatever is known of its life history or habits, as a complete gap exists between its original discovery and my finding it again at Easter, and until when no live specimen had been seen by naturalists.

Being an extremely nervous and delicate fish I only succeeded in getting nine home alive out of forty specimens taken. They, however, continue to thrive in the aquarium, and one cannot help noticing their remarkable rate of growth, which has been quite $\frac{3}{4}$ inch in two months, which rate is much greater than that of the young of *Melotaemia nigrans*, the mainland Atherine, in any of my tanks under similar conditions.

No adult specimens came to my net, the largest being then about $1\frac{1}{2}$ inches long. The fully matured fish is 3 or 4 inches long. The description given by C. Tate

Regan is as follows:—"Depth of body, $3\frac{1}{2}$ in the length. Length of head $3\frac{3}{4}$. Snout $\frac{1}{2}$ diameter of eye, which is $2\frac{1}{2}$ in the length of the head and equal to the interorbital width. Mouth oblique and lower jaw somewhat projecting, 33 to 35 scales in a longitudinal series and 8 or 9 in a transverse one. Dorsal fin 4 spines, 11 soft rays. Anal 1, 18-19" Though young, my specimens are in excellent colour showing clearly the characteristics of the adult fish, viz.:—Main body colour, a pale iridescent bluish silver, each scale between the lateral line and dorsal being margined with black, giving a latticed effect. Those on the line itself from head to tail have much thicker and darker edges, thus giving the appearance of 2 straight black lines. The scales below the lateral line are not margined, showing merely scattered dark spots. The disposition of the scales is in regular longitudinal rows. A dark spot at the base of each soft ray of dorsal and anal. Head olivaceous. All fins are orange margined with black, the caudal being forked.

In comparison the mainland Atherine (*Melanotaemia nigrans*) has the head forming a fifth part of the length, snout is flat. The diameter of the small eye is just equal to the portion of the snout lying before it, i.e.f., the short snout of *R. ornatus*.

Fins, dorsal (1), 1 spine, 4 rays (2), 1, 12. Anal 1, 18. The scales are only 30 on the lateral line and 10 transversely.

Colouring most variable as regards markings, they sometimes being black and at others scarlet. An even stripe (red, or black) runs along the lateral line from the base of the tail and is continued forward over the gill cover upper half of the eye and sides of the snout. Sometimes the scales are bordered with black or red and at others merely show dots. There are no markings below the line. The fins are usually colourless margined with black.

This form of the mainland seems to be absent from Moreton Island.

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NOTE ON THE GENUS *STIGMODERA*.

By L. Franzen.

At our July meeting I exhibited a case of beetles comprising thirty-five species of the genus *Stigmodera*, collected by me during the last season in the Brisbane district. The species exhibited were:—*S. gorei* C. and

G., *S. affabilis* Kerr, *S. porosa* Cart., *S. decemmaculata* Kirby, *S. rufipennis* Kirby, *S. octospilota* L. and *G.*, *S. aeticollis* Cart., *S. octomaculata* Saunders., *S. erythroptera* Bois., *S. nova*. var. Kerr., *S. nasuta* Saund., *S. hablerae* Cart., *S. decipiens* Westw., *S. distincta* Saund., *S. jucunda* Saund., *S. andersoni* C. & G., *maculicollis* Cart., *S. crenata* Dan., *S. pumetiventris* Saund., *S. maculiventris* Mael., *S. impressicollis* Mael., *S. mustelamajor* Thoms., *S. analis* Saund., *S. variabilis* Dan., *S. saundersi* Waterh., *S. pertyi* Saund., *S. strigata* C. and G., *S. deceptor* Kerr, *S. humeralis* var. Kerr., *S. producta* Saund., *S. disjecta* Kerr, *S. acuminata* Kerr, *S. bella* Saund., *S. gentilis* Kerr, *S. seigullata* Mael.

Of above listed species a few are worthy of special comment. The pride of the season's capture is a single specimen of *Stigmodera maculicollis*, an extreme rarity, taken on the flowers of a small stringy-bark tree at the foot of One Tree Hill. *S. porosa*, only described a few years back by Mr. H. J. Carter, is still looked upon as a rarity. A purple *S. variabilis*, which I captured together with several of the ordinary forms is a valuable acquisition to my collection. *S. humeralis* var., *nova* var., and *hablerae* are by no means common. *S. mustelamajor* is a fairly well distributed beetle, but is nowhere common. Of the remainder *S. gorei*, *impressicollis*, and *decipiens* are probably the best.

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LIST OF BUTTERFLIES COLLECTED OR OBSERVED DURING EASTER EXCURSION TO MORETON ISLAND, 1924.

By L. Franzen.

Danaida archippus, Fabricius; *Danaida petilia*, Stoll; *Danaida hamata*, Macleay; *Danaida affinis*, Fabricius; *Euploea corinna*, Macleay; *Melanitis bankia*, Fabricius, *Melanitis bankia* f. *barnardi*, Lucas; *Hypocysta*; *adiante*, Hubner; *Precis villida*, Fabricius; *Hypolimnas nerina*, Fabricius; *Acraea andromacha*, Fabricius; *Candalides hyacinthina*, Semper; *Pseudodipsas brisbanensis*, Waterhouse and Lyell; *Thysanotis taygetus*, Felder; *Lampides damoetes* Fabricius; *Zizina labradus*, Godart; *Zizeeria alsulus*, Herrich-Schaeffer; *Zizeeria Karsandra*, Moore; *Zizula attenuata*, Lucas; *Theclines thes miskini*, Lucas; *Ogyris zozine*, Hewitson; *Ogyris olane*, Hewitson; *Delias nigrina*, Fabricius; *Delias argenthona*, Fabricius; *Delias nysa*, Fabricius; *Appias ega*, Boisduval; *Catopsilia pyranthe*, Linne;

Catopsilia pomona, Fabricius; *Terias zoraide*, Fabricius; *Terias smilax*, Donovan; *Terias sulphurata*, Butler; *Papilio aegeus*, Donovan; *Papilio capaneus*, Westwood; *Toxidia peroni*, Latr.; *Padraona sunias*, Felder; *Padraona hypomeloma*, Lower; *Telieota Krefftii*, Macleay.

Of the species mentioned above, all are common with the exception of two *Zizeeria albus* and *Pseudodipsas brisbanensis*. The former I had never previously captured in the Brisbane district, but found it to be fairly common at Rockhampton during a visit some little time back to that centre. The latter is an exceedingly rare butterfly, and up till the time of my capture on Moreton Island of five males, only three specimens—two females and one male—had been obtained in Queensland. These were captured by Mr. R. Illidge many years ago. His specimens formed the type of a new race, *Pseudodipsas myrmecophila illidgei*, named by Waterhouse and Lyall. I understand the type is in the Adelaide Museum.

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COLEOPTERA FOUND ON MORETON ISLAND DURING THE EASTER ENCAMPMENT.

By Mrs. Hobler.

Leaving South Brisbane by train for Wynnum on the night of 17th April for the Easter encampment, we were landed early next morning on Moreton Island. This day was devoted to camp settlement and hunting in the vicinity, the latter proving rather unsatisfactory, and only specimens of two common varieties of weevils were found. Even allowing for the lateness of the season the very dry preceding years on the mainland had evidently affected the fauna of the island, as this summer there had been a noted absence of Coleoptera throughout Queensland generally.

On the Saturday most of our party made the ascent of Round Hill, on the top of which during the war was erected a look-out station with telephone communication to Cowan Cowan. On the side of Round Hill were many small gum trees, some of which were flowering. On testing these I secured three species of *Paropsis*, family *Chrysomelidae*. On a long blade of a grass tree was a specimen of *Histeridae* family, called *Hololepta Sidnensis*, evidently out to enjoy the warmth of the sun, as their usual habitation is in the segments of the trunk of the above trees. During the return journey I took two specimens of *Cisseis 12-maculata*, family *Buprestidae*, on

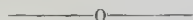
leaves of a similar tree, while on the common fern was obtained a single specimen of *Cisseis marmoratus*. From a collector of the party I am indebted for a specimen of *Cerambycidae* (*Hesthesis ornata*), a curious longicorn of transparent wings, which to the uninitiated could easily be mistaken for a wasp.

From one of those who made the trip to Tangalooma I was kindly given a pair of *Cicindelidae*, or what is commonly known as a tiger beetle. Mr. Illidge tells me that to his knowledge this is the first time this beetle has been found so far north, its usual habitation being the coast of New South Wales.

Though the collecting proved so poor I am quite of the opinion that during the hotter months in a good season *Coleoptera* should be fairly plentiful on this wonderful island, as flowering shrubs seem to be abundant.

List of Beetles.

Cicindela *upsilon* (Tangalooma "sand lake," the usual Queensland coast species is *C. albicans*), *Cyclonotum mastersi*, *Hololepta sidnensis*, *Telephorus nobilitatus*, *Cedemeridae* sp. (?), *Chromomoea fusca*, *Symphyletes compos*, *Cisseis duodecim maculata*, *Cisseis marmorata*, *Automolus* sp., *Edusa* sp., *Paropsis brunnea*, *Paropsis variolosa*, *Paropsis* species, *Hesthesis ornata*, *Leptops fasciatus*, *Mylocerus* species (?), *Polyphrades* species, *Belus semi-punctatus*, *Orthorrhinus cylindrirostris* *Rhinaria signifera*.



BIRD LIFE AT COWAN COWAN, MORETON ISLAND, EASTER, 1924.

By Miss Hilda Geissmann.

Bird life at Cowan Cowan during the recent Camp-Out was on the whole disappointing. Though many bird notes could be heard, nearly all were from the noisy wee throats of the little Brown Honey-eaters. These lively birds were numberless, and made a delightful and melodious clatter, as they feasted among the *Banksia* blooms. Bathing time in the pools beneath the tea trees was also a time of riotous whistling and singing with these brown sprites. Flashing in and out of the water, they were almost too quick for the eye to follow, but the whirring wings made a pleasing accompaniment to the gay whistles and tuneful trills of the bathers.

The white-cheeked honey-eaters were fairly numerous also; their clear, double note could easily be distinguished among the many calls of the Brown Honey-eater.

Yellow wings were there, too, but I saw only a few of them.

Other birds noted were mostly in pairs or alone, with the exception of swallows, leather heads, blue mountain parrots, barred-shouldered doves, sea-gulls, and terns. These appeared in small flocks. One wedge-tailed eagle, two whistling eagles (seen at different times), and one white-bellied sea eagle; several crows, a kookaburra, a forest kingfisher, and a swamp pheasant were noted. Also two pairs of rufous whistler, several willie wags, and one white-shafted fantail; a pair of quail and several mistletoe birds. I saw three times, in different places, a bird unknown to me. It looked something like the hooded robin illustrated in "Leach," but I couldn't see any white on the wings, and its notes were very like a fly-catcher's. It had a habit of wagging its tail up and down, not from side to side. Other birds seen by different members of the party were drongos, bee-eaters, and white-shouldered caterpillar-eaters, which brings the total number up to 27 different species seen on the island and its shores during our four days visit there. Below is the list:—

1. Wedge-tailed Eagle—*Uroaetus audax*.
2. Whistling Eagle—*Haliastur spheurnus*.
3. White-bellied Sea Eagle—*Haliaeetus leucogaster*.
4. Crow—*Corvus coronoides*.
5. Swamp Pheasant—*Centropus phasianus*.
6. Kookaburra—*Dacelo gigas*.
7. Forest Kingfisher—*Haleyon maeleayi*.
8. Quail—Not sure which one.
9. Friar Bird—*Trpidorhynchus corniculatus*.
10. Little Leather Head—*Philemon citreogularis*.
11. Brown Honey-eater—*Stigmatops ocellaris*.
12. White Cheeks—*Meliornis sericea*.
13. Yellow Wings—*Meliornis NovaHollandiae*.
14. Willie Wag—*Rhipidura motacilloides*.
15. Crazy Fan—*Rhipidura albiscapa*.
16. Barred Shouldered Dove—*Geopelia humeralis*.
17. Blue Mountain Parrot—*Trichoglossus swainsoni*.
18. Rufous Whistler—*Pachycephala rufiventris*.
19. Mistletoe Bird—*Dicaeum hirundinaeum*.
20. Welcome Swallow—*Hirundo neoxena*.
21. Bee-eater—*Merops ornatus*.
22. Drongo—*Chibia braeteata*.
23. White S. Caterpillar-Eater—*Campephaga humeralis*.
24. Fairy Tern—*Sterna nereis*.
25. Black-eapped Tern—*Sterna bergii*.
26. Gull—*Larus novae hollandiae*.
27. Hooded Robin—*Melanodryas bicolor*.

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Journal of the
Queensland Naturalists' Club
AND
Nature-Lovers' League.

"The Poetry of Earth is never dead."—KEATS.

The Author of each Article is responsible for the Statements
expressed therein.



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The Queensland Naturalists' Club

— AND —

Nature-Lovers' League.

Official Journal—The Queensland Naturalist.

☐
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☐

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VOL. IV.

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PROCEEDINGS.

August—October, 1924.

EVENING MEETING, 18th AUGUST, 1924.—Mr. R. L. Higgins (past president) occupied the chair, and there was a good attendance of members and visitors.

In making a presentation on behalf of the Club to Mr. J. C. Smith on the occasion of his marriage, the Chairman voiced the appreciation of members for Mr. Smith's three years' hard work as honorary secretary. Mr. R. Illidge read an interesting paper on the fig parrot (*Opopsitta coxeni*). Mr. Illidge is one of the few remaining ornithologists who knew that bird in its native habitat. The fig parrot, never a common bird, was mostly seen in pairs on the big fig trees in coastal jungles. The bird is very rarely observed to-day, and seems doomed, together with the paradise parrot, to extinction. A specimen of the bird, shot over forty years ago (and still in fine preservation), was exhibited. Mr. R. L. Higgins spoke of the ground parrot. He had recently flushed some of the birds in the Wolvi district, but they were reported to be getting very scarce. Dr. A. Eland Shaw, F.E.S., exhibited a case containing males, females, larvae, and egg cases of a cockroach (*Supella supelleetillum* Serville) found in most parts of the world, but recorded for the first time from Queensland. An interesting paper on "lightning," with photographs of the effect on trees struck, was forwarded by Mr. C. Dornbusch, of Warwick, and read by Mr. G. H. Barker. In the discussion that ensued some freakish effects of the vagaries of lightning were recounted by Dr. Marks, Messrs. Nebe, Young, and Francis. The apparent immunity of pine trees from lightning was commented on. Notes on a water rat that invaded a dwelling were sent by Mrs. S. Curtis, Albert River. Mrs. Smith

exhibited a spider with egg-bags, and Mr. Franzen a number of chrysalis butterflies. Mr. G. H. Barker recorded a list of birds from the Mitchelton district, where starlings appear to be largely on the increase. The bird has been recently removed from the pest list, but the speaker predicted that it would not be long before it was back on the black list, owing to its rapid increase and mischievous habits. Mrs. Hobler exhibited specimens of the pronged seed cases of a species of *Martynia*, a commonly naturalised plant on parts of the Darling Downs. The particular specimen exhibited was taken from the wool of a sheep.

—o—

ANNUAL WILD FLOWER SHOW.

SATURDAY AFTERNOON AND EVENING, 27th September, 1924.

The president of the Club (Professor E. J. Goddard, D.Sc.), in opening the show, stated that a great deal of gratitude was owing to the Queensland Naturalists' Club for the wonderful display of wild flowers. About it was an intensely Australian atmosphere, and the exhibition was typically Australian. The native flora and fauna formed a subject for one of the most interesting of studies. Great credit was due to the club for the educational work in encouraging a love of wild flowers in the State Schools.

During the evening his Excellency the Governor (Sir Matthew Nathan) attended, and spent a considerable time inspecting the exhibits. The president extended a cordial welcome to the Governor. In his response, his Excellency stated Australia was fortunate in having so many flowers properly belonging to it. The natural beauties of any country had always to fight against the indifference of the bulk of the country's adults—an indifference which arose from familiarity. On the other hand, children had a strong appreciation of natural beauties. The object of such exhibitions was to make permanent the love of the flowers of the country.

There were twenty-one entries for the Schools' competition, as compared with eighteen last year, and the judges (Prof. E. J. Goddard and Mr. C. T. White) found considerable difficulty in awarding first prizes. The schools successful in obtaining first prizes for their re-

spective districts at the Annual Flower Show of the Queensland Naturalists' Club were:—North Coast (Mullet Creek), South Coast (Camungra), the Granite Belt (Stanthorpe), and Downs and Inland (Googa Creek, via Blackhutt).

Particularly close runners-up for first prizes were Yandina and Brown's Creek in the North Coast division, Beechmont Lower and Runcorn in the South Coast division, and Ballandean and Thulimbah in the Granite Belt. The schools coming within the Downs and Inland division all ran very close to one another, and the prize, after due consideration by the judges, was awarded to the Googa Creek School near Blackbutt, an area with a flora midway between the coastal and Downs, containing types of both floras. Owing to the circular instructions issued schools, and also printed in "The Education Office Gazette," the flowers this year arrived from the schools in far better condition than last year. There would seem no doubt that the State Schools competitions at the Annual Wild Flower Shows run under the auspices of the Queensland Naturalists' Club are of educational value to the children, and early teach them powers of observation, inculcating a love for Queensland's beautiful wild flower flora.

The Committee of the Club desire to thank all teachers who encouraged their children to enter for the competitions, as quite apart from the competitions the State Schools exhibits themselves, are now always a feature of the Wild Flower Shows looked forward to by the public and help to make the Shows the decided success they have proved in the past.

Though held late in the spring, there was a good showing of wild flowers from different parts of the country. One of the outstanding features of the exhibition was a beautiful display of wild flowers gathered from places along the Albert River and staged by Mr. and Mrs. S. Curtis. This display owed much to the energy of Mr. D. Curtis, who spared no pains in getting together the very fine collection shown. The flora of Tamhourine Mountain was again well represented, and the fine collection of orchids and other flowers staged by Miss H. Geissmann was a great attraction to the public. An exhibit of great educational value staged by Miss Geissmann was a series of photographs illustrative of the Tamhourine Mountain, "Zamia" (*Macrozamia Denisoni*).

The flora of Moreton Bay, with its *Boronias*, large ground Orchids (*Phaius*), and other flowers was well represented through the efforts of Mr. T. Welsby and Mr. H. B. Hamilton. Wild flowers from the neighbourhood of Brisbane were shown by Mrs. W. Smith.

Victoria was conspicuous by the several species of wattle brightening up her exhibit. The waratah—emblem of New South Wales—was the dominant feature in that State's collection. Among 30 different species exhibited by the New South Wales Naturalists' Club were Flannel-flowers and the rubescent Native Rose. Western Australia was represented by a nice showing, prominent being "everlastings" from the Darling River, near Perth. About 30 different species came from South Australia, Eucalypts, several species of *Grevillea* and *Tetratheca* being features.

Paintings and Photographs.—A fine collection of water-colour studies of native flora was exhibited by Mr. A. G. Stark.

An exhibition of 70 hand-painted photographs of Queensland flora, taken and coloured from original flowers, was shown by Mr. R. L. Higgins. Deserving of high praise was the collection of photographs of native flora by Messrs. W. G. and R. C. Harvey, of Mackay. Mr. D. W. Gaukrodger's natural history photographs, numbering 50 or more, attracted a great deal of attention. Each photograph told its story of patience and determination in waiting a favourable opportunity to photograph the timid birds of the wild in their natural haunts.

Entomology.—Two show cases of butterflies were exhibited by Mr. Illidge.

Conchology.—A noteworthy display of shells collected from Moreton Bay and adjacent beaches was staged by Mr. J. H. Simmonds.

Zoology.—An interesting zoological table, arranged by the Queensland Museum under the supervision of the Director, was a distinctive feature of the exhibition.

Geology.—The Queensland Geological Survey was responsible for an attractive display of minerals representative of the mineral wealth of the State. The display was arranged by the Deputy Chief Government Geologist (Mr. L. C. Ball), assisted by Ms. S. R. L. Shepherd.

General.—Artificial flowers of exquisite beauty, made by the natives of Brazil were shown by Mr. W. B. Alexander.

EVENING MEETING, 20th OCTOBER, 1924.—Professor E. J. Goddard presided, and there was a good attendance of members and visitors. Mr. W. D. Francis (Assistant Government Botanist) delivered a lecturette on "Buttressed Trees of the Queensland Rain-forests."

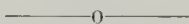
The origin of plank buttresses in rain-forest trees had recently been the subject of investigation by the lecturer, and the deductions he had drawn were contained in a paper recently printed in the "Proceedings of the Royal Society of Queensland." In rain-forests the absence of much direct sunlight on the soil surface and the fertility of the humus, containing upper layers of the soil, both tend to develop the surface roots. Owing to the high humus content of the surface soil and its avidity for oxygen, oxygenation of the sub-soil is retarded, and this acts still further towards the development of an extensive surface root system. The lecturer contended it would appear that in those cases where buttresses have been evolved the upper parts of the principal surface roots have acquired an aerial character, and are subjected to some of the conditions operating in stems. The perpendicular elongation of the stems is a very prominent characteristic of the trees of tropical and sub-tropical rain forests, and is attributed to the attractive agency of light, acting in conjunction with the normal upward growth in opposition to gravity. The upper parts of the principal surface roots in buttressed species may be affected by the same conditions, and in this way the perpendicular extension which constitutes buttresses may arise. The adaptation of roots to an aerial environment is facilitated by the high relative humidity of the air and the exclusion of a great amount of direct sunlight in rain forests. These two conditions therefore are probably factors of considerable importance in the production of buttresses.

Messrs. Geissmann, Curtis, Young, White, Dr. E. O. Marks, and the President discussed the address.

Mrs. C. A. Messmer exhibited several orchids from the National Park, Macpherson Range, and a flowering spray of *Helmholtzia glaberrima*, a most beautiful native flowering plant of flag-like growth, found along the watercourses of the higher parts of the Macpherson Range. Mr. J. E. Young exhibited a pot of *Sarcophilus Hartmanni*, in full flower. The plants were obtained in the National Park, Macpherson Range, and represented a

much smaller form than the average. Mr. Young also exhibited specimens of a liverwort (*Marchantia*) found growing on burnt-over peat swamps on Stradbroke Island. Mr. L. Franzen exhibited specimens of a moth parasitic on *Platybrachys leucostigma*, Walk. Mr. D. Curtis exhibited (a) specimens of some beetles and (b) specimens of the Lycaenid *Paralucia pyrodiscus*, and recorded the fact that it was fairly common on the sides of Tambourine Mountain.

A letter by Mr. Dornbusch, of Warwick, suggesting the rhythmic basis of matter, was read by the acting Honorary Secretary.



GEOLOGICAL NOTES TAKEN ON THE ENOGGERA EXCURSION.

By Dr. E. O. Marks.

The Enoggera reservoir is situated on, or very close to the western boundary of the Enoggera granite intrusion (crossed by the road from town). Opportunity was taken to traverse the country (Brisbane schists) lying between the Enoggera and the Samford granite areas. The road was taken which follows the divide between the headwaters of the Enoggera Creek and Upper Kedron Brook, and leads up high ridges past McAfee's farm and the old Perseverance Gold Mine, until, from a considerable elevation, one suddenly looks down over the wide Samford basin.

The contrast in scenery here is very striking. It coincides with the change from schist to granite, the boundary of which we met with at the foot of the mountain, near Camp Mountain Quarry. In other places, as shown by previous observation, the boundary is on the sides of the hills enclosing the basin.

There was little indication in the schists traversed of the proximity of two large granite intrusions.

No apophyses were observed (though these do occur) and the contact metamorphism is very slight. It is highly probable that the old Perseverance and other mineral bodies in the vicinity owe their origin to the intrusions.

At McAfee's farm the usual poor soil of the schist country is replaced by a richer soil, due to the fact that the schist here is an altered basic rock, similar to that a little further on, on which the Mountain Camp banana farms are situated.

THE EARLIEST DESCRIPTIONS OF AUSTRALIAN ANIMALS.

Resumé of Lecturette by Mr. W. B. Alexander, M.A.

The speaker gave an interesting account of the early history of our knowledge of the Australian fauna from the time of the first Australian discovery of Australia in 1606 to Governor Phillip's administration (1791). The first authentic account of the occurrence of any form of life on the Australian continent was by the commander of the Dutch vessel, the *Duyfken*, who in 1606 sailed down the western coast of the Cape York Peninsula, which he described as barren country inhabited by wild blacks, a party of whom killed several of his crew.

In 1626 an expedition was equipped in Holland for the East Indies, under the command of Commodore Francis Pelsart. Pelsart's boat, the "*Batavia*," was driven out of her course, and on the night of the 4th June, 1629, was wrecked on the islands of Houtman Abrolhos. Pelsart with eight men succeeded in reaching Batavia in one of the ship's boats and returned to rescue the remainder of the castaways. Pelsart's journal is of interest to students of Australian zoology as it contains the first detailed description of an Australian marsupial, a very complete description of a species of wallaby being given.

The first Englishman to set foot on Australian soil was William Dampier in 1688. After the publication of the account of his voyage he was sent in 1699 by William III. in the "*Roebuck*," under an admiralty commission to make further explorations on the north-west coast. Dampier took back to Europe a more complete account of the birds, animals, fishes, and plants of the country than any of his contemporaries. It is worthy of note that some of Dampier's specimens are still preserved at Oxford University. His account of his voyage was illustrated by figures of several birds, fish, and plants found on the coast of New Holland.

In 1696, between Dampier's two voyages, Commander Willem de Vlaming was ordered by the Dutch East India Company to carefully explore the western coast of Australia. De Vlaming discovered the Swan River, and took back to Batavia two live specimens of the then fabulous Black Swan.

Following the Dutch navigators the French showed some activity, and Sonnerat's journal of his voyage to

New Guinea is of interest to ornithologists, as it contains the first published figure of the Laughing Jackass or Kookaburra.

The years 1769 to 1779 are noteworthy as being the years of Captain Cook's three voyages to the South Seas. In his first voyage Captain Cook was accompanied by Mr. Banks, afterwards Sir Joseph Banks, the eminent president of the Royal Society, and a wealthy patron of science, who took with him Dr. Solander, a distinguished naturalist, two draughtsmen, and a staff of servants to assist in collecting. Very full collections and a large number of drawings were made, but for some reason not yet definitely known the accounts of these collections and the accompanying plates were never published during Banks's lifetime. On the second voyage Cook was accompanied by the elder Forster, a well-known naturalist, and on the third voyage Surgeon W. Anderson acted in this capacity.

After the formation of the settlement at Port Jackson in 1788, specimens of Australian birds and animals were sent to England by almost every returning boat. The most enthusiastic collector was John White, surgeon of the colony, whose journal of his voyage to New South Wales was published in 1790. Nearly half the book consists of appendices on the flora and fauna with many illustrations and descriptions by Dr. George Shaw, of the British Museum, and other English naturalists. The previous year a book containing various official papers and miscellaneous documents had been published in London under the title of *The Voyage of Governor Phillip to Botany Bay*. This work contains numerous pictures of Australian birds and animals, with brief descriptions, mostly by Dr. John Latham, the famous ornithologist.

The lecture was illustrated by slides prepared from the illustrations in the books mentioned, also from Latham's *General Synopsis of Birds*, and Shaw and Nodder's *Naturalists' Miscellany*, works which were appearing at the time of the Port Jackson settlement. Amongst the species figured prior to 1792 were the following well-known creatures:—Kangaroo, Common Opossum, Ringtail Opossum, Native Cat, Dingo, and Porcupine Anteater, White Cockatoo, Black Cockatoo, Kookaburra, Sacred Kingfisher, Blue Wren, Bronzewing Pigeon, White-fronted Heron, Black Swan, and Emu; Goanna, Blue-tongued Lizard, and Port Jackson Shark.

THE EUCALYPTS OR GUM TREES OF THE BRISBANE DISTRICT.

By C. T. White, F.L.S., Government Botanist.

II.

(Continued from "Queensland Naturalist," Vol. IV.,
p. 72.)

I.—*Eucalyptus saligna* (Flooded Gum.)

Description.—A handsome tree, with a large straight bole, bark persistent on the lower part of the tree, lower bark somewhat spongy, upper bark leathery, or of almost parchment-like texture, hanging in long thin ribbons, leaving the greater part of the trunk smooth and shining, white, green, or reddish. Coppice ("sucker") leaves dark green above, paler beneath, broadly ovate to ovate-lanceolate, commonly but not always oblique at the base, tapering to a long acute point at the apex, petiolate, petiole (leaf-stalk), $\frac{3}{4}$ -1 inch long, blade or lamina up to 8 in. long, and up to 3 in. broad. Ordinary (secondary or adult) leaves lanceolate, straight or slightly falcate, usually oblique at the base; the upper part tapering to a long acute apex, petiolate, petiole $\frac{3}{4}$ -1 inch long, blade 4-7 in. long, 1-1 $\frac{1}{2}$ inches wide, midrib distinct, main lateral nerves, oblique somewhat irregular, mostly about $\frac{1}{4}$ in. apart, reticulations fine and fairly distinct in the dried leaf, intramarginal vein fairly distinct very close to the edge. Flowers in simple heads in the axils of the leaves, 3-8 flowers in a head, peduncle flattened 3-4 lines long. Calyx tube narrow-turbinate, 2-4 lines long, operculum conical, scarcely as long as the calyx-tube. Stamens 2-3 lines long, anthers ovate with parallel cells opening by a longitudinal slit. Seed capsules broadly turbinate, about 4-5 lines long, 3 lines broad at the mouth, the rim narrow, slightly raised along the calyx border, capsule slightly sunk, valves 5, more or less protruding.

Distribution.—In the Brisbane district this species is found only on rich alluvial flats near Ferny Grove (Dayboro Line), and here and there along Kedron Brook. It extends as far north as the Atherton Tableland in North Queensland, and as far south as the neighbourhood of the Clyde River in New South Wales.

Botanical Name.—Eucalyptus, from the two Greek words, "en" well, and "kalypto" I cover, in allusion to the little cap or operculum of the flower bud, which acts



A Group of Flooded Gums (*E. saligna*), Tambourine Mountain.
Photo by A. H. Chisholm.

as a protection to the essential parts of the flowers, and is thrown off as these reach maturity; "saligna," Latin, signifying pertaining to a willow, unfortunately not a very appropriate specific name.



A Fine Specimen of the Moreton Bay Ash (*E. tessellaris*), Bribie Island.
Photo by Prof. E. H. Wilson, Arnold Arboretum, Boston, U.S.A.

Common Names.—In Queensland almost universally known as "Flooded Gum." In New South Wales most commonly known as "Blue Gum," a vernacular applied in Queensland most frequently to *E. tereticornis*.

Timber.—A general purpose timber for building use.

Botanical Reference.—*E. saligna* (Smith) in Trans. Linn. Soc. Vol. III., p. 285, 1797.

2.—*Eucalyptus tessellaris* (Moreton Bay Ash).

Description.—A large tree often of very graceful appearance, bark on the lower part of the trunk persistent, black and irregularly, but markedly, tessellated, upper part of trunk smooth and shining. Leaves narrowly lanceolate, midrib prominent, lateral nerves very prominent and close together, petiolate, petiole about $\frac{1}{2}$ inch long, blade 4-5 inches long, $\frac{1}{4}$ - $\frac{1}{2}$ inch wide. Flowers arranged in irregular small, lateral or axillary panicles, the upper ones or those on short lateral branches often forming comparatively large compound panicles. Calyx tube turbinate, 3 lines long, including the slender pedicel; operculum very short, convex of rather thin texture. Stamens 2-3 lines long, anthers narrow-oblong with parallel distinct cells opening by longitudinal slits. Seed capsules oblong, of rather thin texture, 5-6 lines long and about 3 lines broad, capsule deeply sunk, 3-celled.

Distribution.—Fairly common in the Brisbane district and not confined to any one locality or geological formation. It is one of the most widely distributed species in Eastern Australia, extending northwards to the Gulf country (North Queensland) and southwards to Howell in New South Wales. It is common on the coast, but extends inland for about 300 miles.

Botanical Name.—*Eucalyptus* (see under No. 1), *tessellaris*, from the Latin "tessella," a small square or piece of stone, a little cube for pavement, etc., referring to the bark being cut up into a number of tessellations.

Common Names.—In Queensland almost universally known as "Moreton Bay Ash"; in New South Wales known either as "Moreton Bay Ash" or "Carbeen," though in Queensland this latter name is applied almost exclusively to *E. Papnana*.

Timber.—A hard brown timber not much cut; used for miscellaneous purposes.

Botanical Reference.—*E. tessellaris* (F. v. Mueller) in Journ. Linn. Soc. (London), Vol III., p. 88. 1859.

THE BLUE-FACED LORILET, ALSO CALLED COXEN'S FIG PARRAKEET.

(*Opopsitta coxeni*, Gould.)

By R. Illidge.

In Nature Notes, by J. O'Neill Brennan ("Daily Mail" for 9th August, 1924), my name is mentioned as being one of those who had seen living examples of this parrakeet in its native habitat.

Hence I feel compelled to substantiate Mr. Brennan's remarks as to this fig-eating lorilet, and add my own very meagre knowledge regarding its habits as described by him. A specimen of the bird (stuffed skin) was exhibited by me at one of our own meetings some years ago, and remarks on the rarity of the species made, but do not appear to have been recorded. On a previous occasion I had shown skins of the Paradise Parrot, under name of Beautiful Grass Parrakeet, and made remarks as to the approaching extinction of that superb species. Coxen's Lorilet was never a common species, but the Paradise Parrot was about 40 years or more back. The latter is, despite the find of a few specimens in a certain district of Queensland, on the verge of complete extinction. The Lorilet is fast following in its wake, as I will show later on.

Mr. Gregory Matthews, in his splendid new work on the "Birds of Australia," beyond the description and figures of the birds, male and female, has no information regarding same, except that "small flocks of them had been seen outside a scrub, and some were shot to make a pudding." Now I cannot imagine anyone shooting these tiny parrots for such a purpose. The Little Lorikeet (*Glossopsitta pusilla*), is a bird of the open forest, flies in small companies and is usually abundant when eucalypts are in bloom, it has been mistaken for the fig parrot.

The Blue-faced Lorilet has been shot by me now over 40 years ago, when collecting bird skins was a craze and a companion was a nuisance. However, when I obtained what I desired, generally about six, and of these four males and two females, my wants were satisfied. I had no exchanges that I can remember. They were first seen by me in the Brookfield and Enoggera scrubs, especially

the first named, where I got my first specimen, a novelty indeed. They were also seen by me on rare occasions in the D'Aguilar Range, as also the Blackall Range, where I met with them in January of 1870; likewise at Gympie in the Fisherman's Pocket, a favourite resort of the town sportsmen for pigeon shooting. Here were some fine fig-trees, which when in fruit were frequented by great flights of top-knot pigeons (locally known as flock pigeons) and others. Attracted by the fruit these ting Lorilets were also occasionally seen feeding amongst them, and that they were these birds was not doubtful, for a relation of mine whilst with me shot one, and I showed him how to prepare the skin.

The home of this Lorilet was in the great fig trees of the dense jungles, chiefly of the coast ranges. It never resorted to the more open forest so far as known to me. Amongst the several species of these giant fig trees there were always some in fruit all through the year, hence no scarcity of food could affect it. From dissections made on those shot it appears to have pecked out the very young buds of the fig trees, but whether as food may be considered doubtful, for like parrots in general, it probably had the bad habit of nibbling at most things, possibly inadvertently swallowing small pieces. It may also eat other fruits, although dissection did not reveal such to be a fact.

These parrots were never seen by me as "fairly numerous," for they usually appeared in the fig trees in pairs, and did not arrive in small flocks, though one might see perhaps half-a-dozen in one tree, but it would need an extremely careful search to find even that number. The best plan in searching is to get down on your back on the ground, for the strain of looking up into one of these great trees, perhaps not less than 200 feet up, is far from pleasant. I used frequently to carry a small pocket telescope.

The future of the Lorilet is very precarious. In the Blackall Range the scrubs are disappearing yearly at an enormous rate, and with them must go these little birds, as also most others. The same is occurring with the scrubs of the D'Aguilar Range. All those I knew at Gympie are down, and the greater part of the Brookfield long since disappeared. Hence it is improbable that its full life history will ever be known.

NOTE ACCOMPANYING EXHIBIT.

By Dr. A. Eland Shaw, F.E.S.

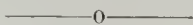
***Supella supellectilium* Serville: A Cockroach not before
Recorded for Australia.**

This Cockroach was described by Leville in 1839, and is now to be found in most parts of the world. It has not hitherto been recorded from Australia, but specimens in my collection point to a wide distribution in Queensland. My earliest examples came in 1915, through Mr. Les Kelly, from the Lower Burdekin district, and in 1917-19 Dr. J. F. Illingworth took it on one of the coasting boats and at Cairns, Gordonvale, and Mosman, N.Q. My own records are from the Brisbane district, where in 1918 I first found it in my house at Wynnum; and subsequently very numerous in several other houses there; and now I take odd specimens at Goodna. Some houses in Wynnum are heavily infested, and both sexes occasionally fly into houses at night. *S. supellectilium* Serv. occurs as a domestic insect in company with the common *Blattella germanica* Linn, and seems capable of even more rapid multiplication than that species. Its spread over Australia generally is to be expected.

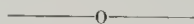
—o—

Water Rats.—Some few weeks ago a writer in the "Courier" stated Water Rats never left the water. They may not do so in some places, but here we found them very partial to ducks and fowls, coming up from a small waterhole to the pens and helping themselves. One winter I was puzzled to know what got into my kitchen. The thing would get on the table and eat anything that might be there, and was especially fond of meat; it would drink milk and would leave some very dirty plates when it had finished. I shut down the windows and still the thief got in. One cold morning I was sitting at the stove knitting, and everything was quiet, and from under the dresser came an ugly black head looking round, then out came a large water rat, climbed up on the flour bin, and began helping himself to the milk that was in the bucket. As soon as I moved he went like a flash. We found he had a small hole in the floor he came through (the kitchen floor was near the ground.) We succeeded in catching him one

morning. Then we had a good look at him and let him go, then closed his hole, so his lordship had to hunt further for his food. This sounds like a fairy tale, but it is quite true.—(Mrs. S. Curtis, Albert River, S.Q.)



A New Rotifer.—At the October meeting of the Royal Society of Queensland the veteran Queensland authority on the Rotifer (Mr. W. R. Colledge) read a paper descriptive of a new species of Rotifer of the genus *Melicerita*. The new Rotifer was found in a pool at Rocklea, near Brisbane, by Miss Bursdorff, and has been named by Mr. Colledge after the discoverer. It is noteworthy on account of its large size (not forming a protective tube) and in its solitary, not Colonial habit.



ADDITIONS TO THE LIBRARY.

Recent additions to the library include the following Australian publications:—

- Australian Museum Magazine (Sydney), Vol. 2, Nos. 1, 2, and 3.
- Australian Naturalist (Sydney), Vol. 4, parts 8-11.
- Australian Zoologist (Sydney), Vol. 3, parts 5 and 6.
- Australian Forestry Journal (Sydney), Vol. 7, Nos. 2-8.
- The Gum Tree (Melbourne), Vol. 8, No. 29.
- Queensland Geological Survey, publication No. 273, Mesozoic Insects of Queensland (Dunstan and Tillyard). No. 274, Geology of Cairns Hinterland (Jensen).
- Commonwealth Department of Public Service Bulletins, Nos. 2, 3, 4, and 8.
- Scientific Australian (Melbourne), Vol. 30, Nos. 2, 3, and 4.
- South Australian Naturalist (Adelaide), Vol. 5, Nos. 2, 3, and 4.
- South Australian Ornithologist (Adelaide), Vol. 7, No. 6.
- Victorian Naturalist (Melbourne), Vol. 41, Nos. 1-3.
- Journal and Proceedings of the Royal Society of Western Australia (Perth), Vol. 9, part 2.
- Two Papers from Capt. S. A. White—Prof. David's Expedition to the Finke River, and Old Dutch Homes in South Africa.

9/2/27

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APRIL, 1925

.. The ..
Queensland Naturalist

Journal of the
Queensland Naturalists' Club
AND
Nature-Lovers' League.

"The Poetry of Earth is never dead."—KEATS.

The Author of each Article is responsible for the Statements
expressed therein.



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The Queensland Naturalists' Club

— AND —

Nature-Lovers' League.

Official Journal—The Queensland Naturalist.

☐

OFFICE BEARERS, 1925.

☐

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Hon. Editor, Naturalist: Mr. C. T. White, F.L.S.

(Govt. Botanist, Botanic Gardens, Brisbane).



SUBSCRIPTIONS:

Ordinary Members 10s. per annum.

Country Members 5s. per annum.

Nature-Lovers' Certificate, 4d.

MEETINGS:

Evening Meetings are held at the Brisbane Women's Club Rooms
Albert House, C/r Albert and Ann Streets, Brisbane,
on the third Monday of every month.

Excursions are held once or twice a month from March to December.

The Queensland Naturalist.

JOURNAL OF THE QUEENSLAND NATURALISTS' CLUB
AND NATURE-LOVERS' LEAGUE.

VOL. V.

APRIL, 1925

No. 1.

PROCEEDINGS.

November, 1924—March, 1925.

EVENING MEETING, 17th NOV., 1924.—The President (Professor E. J. Goddard) occupied the chair. An exhibit of mounted specimens of plants illustrative of the flora of Roberts' Plateau, Lamington National Park and Macpherson Range was shown by Mrs. C. A. Messner. The specimens were described by Mr. C. T. White (Government Botanist), who spoke in a general way on the flora of the mountain regions of Eastern Australia, with special reference to that of the National Park area of Southern Queensland. A collection of plants from Western Australia, collected by Miss C. Allum, of Perth, was staged by Mrs. W. M. Mayo (Hon. Secretary). The exhibit was commented upon by Mr. W. B. Alexander, whose residence of some years in Western Australia enabled him to speak in a more or less general way on the floral wealth of that State. Mr. Mackenzie sent for exhibit a rather interesting grasshopper (*Alectoria superba*). This insect is remarkable in wearing a large crest on its head. Mrs. W. M. Mayo exhibited what she took to be an aboriginal stone-cutting implement collected at Myora. A small collection of marine Algae from Dunwich, Moreton Bay, was staged by Mr. J. C. Smith. Mr. W. B. Alexander and Mr. G. H. Barker gave brief accounts of the recent meetings of the Royal Australian Ornithologists' Union at Rockhampton and Byfield.

ANNUAL MEETING, 23rd February, 1925.—His Excellency the Governor (Sir Matthew Nathan) patron of the Club, presided, and there was a good attendance of members and visitors. The retiring President (Prof. E. J. Goddard), delivered his presidential address, taking for the scientific portion, "Some Aus-

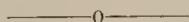
tralian Life Forms and their Significance." *The officers for the ensuing twelve months were elected, as set out on the cover page of this issue. The Annual Report was read and adopted, after a few amendments. The Hon. Treasurer (Mr. G. H. Barker) presented the financial statement for the year. The Hon. Librarian (Mr. G. H. Barker) reported that 178 parts of serial publications had been added to the library during the year; most being received as exchanges.

EVENING MEETING, 16th MARCH, 1925.—Mr. W. B. Alexander (President) occupied the chair, and there was a good attendance of members and visitors. The following persons were unanimously elected members of the club:—Dr. and Mrs. Gifford Croll, Mr. R. S. Pennycuik, Mr. G. H. Hardy, Mr. J. Mann, and Mr. J. B. Wadley. The principal business of the meeting was the screening of a number of lantern slides of bird life by Mr. D. W. Gaukrodger, from photographs all taken within a fifty mile radius of Alice Downs Station, Blackall, Central Queensland. Particularly noteworthy was a fine series of slides illustrating the life history of the emu, and another of the wedge-tailed eagle. Slides of a number of other birds were shown, pictures of the Common Crow (raven) at the nest, and also of the Galah being specially attractive, these birds though among the commonest, being particularly hard to photograph.

Reports on the recent excursion to Kuraby were given by Mr. J. C. Smith (general), Dr. E. O. Marks (geology), Mr. W. B. Alexander (bird-life), and Mr. Franzen (insects). Mr. R. L. Higgins tabled a number of photographs taken on the excursion. The exhibits staged at the meeting were of considerable interest, and created a good deal of discussion. The following exhibits were tabled:—By Mr. J. B. Wadley, a particularly fine pair of dingo skins from Murgon; by Mr. H. A. Longman, skull of dingo and of Tasmanian wolf, showing differences in brain cavity, also a fossil tooth of a large extinct marsupial wolf from cave earth at Marmor Quarry, donated to the Queensland Museum by Mr. S. Evans. The tooth is probably identical with *Thylacinus spelaeus* Owen, from the Wellington Caves; by Mr. P. Franzen, a case of neuropterous insects, principally antlions; by Mrs. Hobler, two rare insects, *Yorkeia marmorata* and *Phoracantha grallaria*; by Mr. R. Illidge,

*Held over till next issue.

interesting insects collected recently by himself and other members of the club (see page 11).; by Mr. G. H. Barker, a peculiarly shaped stone; by Dr. E. O. Marks, young Jew lizards (*Amphibolurus barbatus*), hatched from eggs brought to him last November; by Mr. W. B. Alexander, an interesting spider, *Dolophones* (*Tholia*) *turrigera*, and a painting by Mr. Neville Caley, of the Fairy Warbler, a bird until the recent visit to Central Queensland of the Royal Australian Ornithologists' Union, thought to be only the female of an allied species.



QUEENSLAND NATURALIST CLUB.

Annual Report of the Council for the Year 1924.

Nine Council and eight Ordinary meetings have been held during the year, together with the usual field excursions. Council and ordinary meetings have been well attended, and the interest in Saturday afternoon excursions and the various camps has been well maintained.

Field Excursions.—Early in the year the President, Professor E. J. Goddard, outlined a general scheme for the complete biological survey of the area between the Brisbane and Pine Rivers that might be made the objective of the Club during the year, and promised to make cabinets at the University available to house specimens and material collected. In pursuance of this scheme, all Saturday afternoon excursions for the year were held in the one area. Enoggera, Lawnton, Mitchelton, Bald Hills and Nudgee were each visited, but the result showed that the time was not yet ripe for such a proposition to be undertaken by the Naturalist Club. A plan of that nature, excellent though it might be, needs a much larger and more enthusiastic membership of younger members than the Club has at present.

The Easter excursion to Moreton Island was well organised and attended; over 40 members were in camp, and the result of the observation during the Easter period made an interesting number for the "Queensland Naturalist."

The Beerwah trip, early in September, was also successful. The honorary Excursion Secretary (Mr. J. C. Smith), is to be congratulated on the arrangements for these extended trips.

Evening Meetings.—At the evening sessions there has been plenty of interest and enthusiasm. Material and specimens collected on the excursions have been tabled, named and discussed; papers by country members have been read, and during the year Messrs. Illidge, Alexander, Dr. Marks, Dr. Eland Shaw, Mr. White, Mr. Francis, and Mr. Coleman were responsible for interesting and instructive papers on ornithology, botany, entomology, etc.

Membership.—Club membership now stands at 131. A fair number of country people have joined up during the year, and a quarterly issue of the "Naturalist" is really needed to keep us in touch with them.

By the death of Mr. W. M. Tanner, Honorary Lanternist and most enthusiastic worker, the Council lost a valued aid this year. A club member of long standing in Mr. Wheeler, has also passed. It is with great regret also we have to record the death of Mr. Frank Burt (a past President of the Club), and of Mr. L. E. Cooling, a promising young entomologist, who devoted much attention to insect pests in connection with public health.

Wild Flower Show and Natural History Exhibition.—The Show held at the latter end of September was a most successful one. The School Competitions in Wild Flowers showed a big improvement on the previous year in methods of picking, packing and choice of material. The work of arranging and judging the school section of the Wild Flower Show was ably looked after by the Government Botanist (Mr. C. T. White). A special feature of the Show was the tables representing the different districts on which the flowers of those districts were massed. The public showed great interest in the flowers, and made several suggestions for the improvement of the next flower show, by which the Council hope to profit when the time comes.

Nature Study in Schools.—For some time past, the Naturalist Club has been largely responsible, through its members, for the subject matter of the October issue of the School Magazine. The work accomplished by the Club in this direction has been appreciated by teachers and pupils alike. It is to be regretted that no application for a continuance of the work was received from the Education Department last year. The School Magazine

certainly suffered, and there was general disappointment among the children when their "bird number" failed. Queensland is the only State on the mainland of Australia, which has not an instructor of Nature Study attached to the Education Department. It would be a good thing if the Naturalist Club endeavoured by representations to the Department of Education to get Queensland into line with the other States in regard to this very necessary branch of study.

Revision of Rules.—One of the first duties of the incoming Council will be the revision of the Club rules, bringing them up to date, and thus facilitating the management of the Club.

"Queensland Naturalist." There have been three issues of the "Naturalist" during the past year. Given sufficient material, the Editor hopes to make a quarterly issue this year.

E. J. GODDARD, President.

MRS. W. M. MAYO, Hon. Secretary.

PRESIDENTIAL ADDRESS.

By Professor E. J. Goddard, B.A., D.Sc.

(Read at the Annual Meeting, 23rd February, 1925)

It is the usual practice on such occasions as this, I believe that the President delivers an address on a special scientific topic. If such be the case, then I must crave your indulgence for slightly departing from that custom for a duel reason. In the first place, I am impressed by the fact that a weighty scientific contribution would find better place in the pages of one of the scientific journals; and secondly, I appreciate the fact that the Naturalists' Club occupies a unique position, inasmuch as it devotes its interests really to Natural History in a naturalist's fashion and is concerned with encouraging a love for nature study in the community, and notably among the growing generation. During the past year I have had an opportunity of recognising the conditions under which the Queensland Naturalists' Club attempts to carry on the work which falls within the sphere of activities of such a Club, and have learned to appreciate the difficulties which confront these

efforts. While the Club is constituted by a number of men and women whose love for some aspect of Natural History finds expression in their association with others of similar or cognate tastes—and in this way the Club must always remain as a natural entity—it is a most regrettable fact that in a city such as Brisbane there is practically no representation of the junior section of the community. There must surely be a large number of young folk whom the love for birds, beetles, butterflies, moths, shells, sea-shore life, wild flowers, etc., enthralls, and for whom the Naturalists' Club should offer special attractions. The monthly meetings and excursions represent excellent opportunities for such folk, and would enable them to form a healthy specialised knowledge of the particular group of animal or plant life or the particular division of Natural History in which they have a natural interest. The Club would welcome such to its ranks, for it badly needs their help and sympathy. It is sincerely hoped that these remarks may be noticed by any who do not know of the existence of the Naturalists' Club, and are ignorant of the opportunities which are available to them.

Unfortunately, the interests of the Club are largely kept up, at present, by members of advanced years, and by others of a professional status, and it is their wholesome desire that they should have the opportunity of helping and encouraging others in the study of our Natural History, in the hope that these younger members will carry on the work for which the Club exists. There is no reason why the Queensland 'Naturalists' Club should not include and be largely controlled by a band of enthusiastic naturalists whose leisure time could be filled in with satisfying nature studies, the variety of which might be well met to the advantage of themselves and the community. There is little of that leisure available for many who, at present linked up with the Naturalists' Club, are precluded by professional duties from indulging to the extent they would like in the activities of the Club. Biological study is becoming more seriously recognised in the business of the State, in view of its economic importance, but in many ways it would be most regrettable—even disastrous—if this side of nature study were to become exclusively pre-eminent. We hear much about the applied, practical or economic, and the theoretical aspects of scientific study, but it

must always be borne in mind that, after all, the theoretical aspect represents the fundamental source from which we must draw. Certain it is that we must exercise perspective, and recognise that in the business of the State the economic aspect must be kept in view, for, after all, attention is generally focussed on some specific problem whenever the aid of science is sought. At the same time, and especially in many biological problems, there is a very considerable amount of work which might be done by many who possess the natural ability and aptitude, and might be encouraged to undertake such. The pages of our scientific journals in various parts of the world reveal the names of many workers who have availed themselves of the opportunities bestowed on them by Nature, and such institutions as the Naturalists' Club. Such institutions have meant the stimulation of a natural interest and have created confidence with the enthusiasm engendered. Biological achievement in Queensland is certainly not commensurate with the existent ability to produce results. In view of this fact, it is regrettable that there is not a larger representation of the teaching profession within the membership of the Club, since that profession could achieve much, directly or indirectly, in the direction indicated. In making these remarks I am not unmindful of the fact that the Club exists primarily for the encouragement and cultivation of a love for Natural History, and in this respect my mind is drawn to an analogy when reviewing the relative merits of economic and aesthetic tastes—I refer to the relation of State and Church. The activities of such interdigitate in such a way that it is impossible to abruptly demarcate the influences of these two institutions as far as the life of the community is concerned. Within the biological field the Naturalists' Club attempts to foster a love for Nature, and in so doing is accomplishing educational work. Charles Darwin was foremost and pre-eminently a naturalist.

Our educational system makes some contribution along these lines by means of instruction in Nature Study, but that largely ceases, unfortunately, when the time comes for the passage of the pupil from the school to the routine business of obtaining a livelihood. The Club endeavours to foster and perpetuate interest in Nature Study throughout life, and in so doing is discharging tasks which should be more widely known.

How many in Brisbane recognise that the exhibition of wild flowers, held annually, represents heavy work for a group of enthusiastic nature lovers, whose idea is to inculcate a national love for the rich and interesting flora of this continent? Incidental to the educational aspect of a work which encourages the faculty of observation, the Club is playing thus a national part. It is to be hoped that its membership, and especially its active membership, will increase.

It has been stated in the Annual Report that an attempt was made during the past year to inaugurate a biological survey of a definite area in the neighbourhood of Brisbane, with a view to listing the animal and plant forms. The value of such a list to the naturalist, present or future, would be great indeed, and in the preparation of that list excellent opportunities would have been offered for anyone interested in any special aspect of Natural History. Unfortunately, the carrying out of the projected scheme was rendered impossible by the fact that the full responsibilities and task devolved on members whose public duties prevented them from giving the fullest attention which the project demanded. It is hoped that some arrangement may yet be conceived in the near future for the discharge of this project, by the collaboration of the Naturalists' Club and the Biology Department of the University. It appears to me that this occasion synchronising, as it does, with the imminent inauguration of the Greater Brisbane scheme, offers an opportunity for certain suggestions which should be appreciated by the Naturalists' Club as well as by the community. Brisbane represents the centre for many activities of State-wide influence, and the certain growth of the city forces on us the necessity of laying foundations which will suffice for more than the present day.

In October, the Botanical Gardens will pass under the jurisdiction of the new Council, and the shortage of suitable park lands within the city forces on one consideration of the future of those Gardens. The position of these Gardens is in some respects ideal, but the area has been so hemmed in that expansion to an extent sufficient to offer the facilities which should exist for National Gardens is impossible. Every civilised country in the world possesses its National Botanic Gardens, and there can be little doubt that every one will agree

that Queensland should possess Gardens where not only representatives of the flora of other parts of the world can be seen, but also a representation as complete as possible, of the Queensland flora. The interest in such Gardens should not be restricted to naturalists, for, independent of the pure scientific value of such Gardens to the botanist, and their general interest to the community, such work of an economic nature might be associated with them. Little more than ten years ago there were founded at Kirstenbosch, in South Africa, National Gardens for the cultivation of South African plants, keeping in view the national, scientific and economic importance of such an institution. To-day, these Gardens rank about third among the Gardens of the world. The unification of the suburbs of Capetown under one Council synchronised with the setting aside of over 1,000 acres of land on the slopes of Table Mountain, where the Gardens were founded. In view of the great national value of such gardens and the fact that botanical studies are now being more seriously fostered in Queensland, it appeals to me that the suitable time has now arrived for suggesting that an extensive area should be set aside by the Greater Brisbane Council for the purposes of National Gardens. Such an area should be sufficiently large to enable the cultivation of all types of our native flora, and the aim in view should be mainly scientific.

The institution of such Gardens would do much to stimulate work on the economic possibilities of our flora, many aspects of which are as yet practically untouched. Such Gardens should be accessible by tram or bus from the city, and for this reason it is desirable that the matter should receive early attention. Suitable lands for such Gardens is available at the present day, but early allocation is advisable if a sufficiently large area is to be safeguarded. Queensland is a very large State, and for that reason encouragement should be given towards the support of Botanic Gardens in other parts of the State; but, nevertheless, National Gardens offer the best advantages where facilities for scientific research, scientific workers, well equipped libraries, and a University exist. I trust this project will in the near future meet with consideration, and that definite action will be taken along the lines suggested.

The institution of Zoological Gardens might be advocated with perhaps less cogency, but the desirability

of such must early engage the attention of our City Fathers.

I would like to take this opportunity of thanking the members of the Council and the Club for the assistance they have rendered me during the past year. Particularly, I stress my indebtedness to the untiring efforts of the Hon. Secretary, on whom the difficult problems of the Club have mainly devolved. I regret that public duties have prevented me from giving that attention to the matters of the Club, which I willingly would have done. I trust that the new President will be encouraged in his efforts to enhance the value of the Club Meetings and Excursions by an increased membership, but, more important still, by an increasing band of younger workers anxious to further their own and our knowledge of the Queensland fauna and flora.

—o—

RETIREMENT OF MR. ILLIDGE FROM THE COUNCIL.

At the last meeting of the Council for 1924, Mr. R. Illidge, the veteran Queensland entomologist, one of the original members of the Club, and who since its inception in 1904 has served almost continuously on the Council, signified his intention of not standing for election as a member of the Committee for 1925. It was moved at the meeting and unanimously agreed to, that an appreciation of Mr. Illidge's services as a councillor be put on record. Fortunately, Mr. Illidge's retirement from the Council does not mean that he will discontinue to take an active part in the work of the Club, but his help and advice will always be available to members, particularly those taking an interest in entomological matters.



NOTES ACCOMPANYING EXHIBITS.

By R. Illidge.

(a) Collected by **Mr. J. C. Smith**.—Two specimens of a **Neuropterous** insect, belonging to the ant-lions (Myrmeleontidae **Glenurus erythrocephalus**. A not uncommon but very beautiful species, found in the Brisbane district, the present specimens being from Indooroopilly.

(b) Collected by **Miss Hilda Geissmann**.—(1) A Neuropteran, which I have identified as *Dendroleon dumigani* (Tillyard), though with some doubt, allowing for variation which occurs more or less in most insects, though more specimens would be desirable. It belongs to Myrmeleontidae. (2) A lerp (Psyllidae), probably of the genus *Spondylaspis*. This is of interest, because the white woolly filaments formed part of the decoration of the nest of the white-eared flycatcher (*Monarcha leucotis*), taken by her and Mrs. Mayo in the remains of the scrub on Stradbroke Island, opposite Southport, and now deposited in the Queensland Museum. (3) The huge **Xyleutes cinerea**, previously known as *Endoxyla cinerea*. This specimen has a wing expanse of 210 mm., but the tips are broken; it was probably quite nine inches across. The length from head to end of body is 95 mm. (4). An interesting moth (greatly dilapidated and not properly recognisable), is what I once knew as **Chelepteryx ex-politus**, but probably **Darala chelepteryx**, of Felder. Other two known species are *C. collesi* and *C. felderi*, both being found on Tambourine Mt. They are large and beautiful species, especially the latter. The empty case exhibited is that from which the moth so much damaged emerged, and judging from it, I have made the above identification.

(c) Collected by myself.—(1) *Myremelleon* sp? *Acanthacsis* sp? Ant-lion insects, taken in the house at Bulimba (ceiling). Do not appear to be common. (2) *Charagia* (*Hepialus*) *daphnandrae*, Lucas—female. For an account of the habits of this and the *Xyleutes*, above referred to, see Illidge Proc. Roy. Soc., Queens. Vol. XIV., and Illidge and Quail, the same, Vols. XVI and XVII.

THE EUCALYPTS OR GUM TREES OF THE BRISBANE DISTRICT.

By C. T. White, F.L.S., Government Botanist.

III.

(Continued from the "Queensland Naturalist," Vol. IV.,
p. 112.)

3.—*Eucalyptus maculata* (Spotted Gum).

Description.—A tree attaining a large size, the trunk usually marked with bullet-like indentations, the outer dead bark shed in irregular patches, leaving a smooth and usually blotchy trunk. Coppice ("sucker") leaves peltate, somewhat variable in shape and size, mostly ovate and averaging about 5 inches long and 2 inches broad, on a leaf stalk or petiole of $\frac{1}{4}$ - $\frac{1}{2}$ inch; the branches clothed with strigose hairs, in some cases almost amounting to prickles, hairs also abundant on the midribs and main nerves and veins on the under surface of the leaf. As the coppice shoot, or young tree grows, the leaves assume more of the adult form, the branchlets become quite glabrous, and the leaves in this stage attain a very large size, in some cases up to 13 inches long and up to 6 inches across, but usually considerably smaller. Ordinary (or adult leaves) lanceolate, straight or more or less falcate, the upper part tapering to a long acute apex, petiole about $\frac{3}{4}$ inch long, blade 4-7 inches long, $\frac{1}{2}$ -1 inch wide; midrib distinct; main lateral nerves oblique, close and numerous intramarginal vein very close to the edge, and not always very distinct. Flowers in 2-3 flowered umbels, the umbels arranged in panicles in the leaf-axils, the upper ones often forming a large terminal compound panicle. Calyx-tube at first narrowly, then broadly turbinate, when fully developed about $\frac{1}{4}$ inch broad and $\frac{1}{2}$ inch long (including the basal part, which gradually tapers into a pedicel). Opercula two, an outer and an inner one respectively, the outer one broadly hemispherical, turbinate and of a thick, leathery texture, inner one shining broadly hemispherical, scarcely or not at all turbinate, and of much thinner texture than the outer one. Stamens $\frac{1}{2}$ inch or more long; anthers narrow-oblong, nearly one line long, with parallel cells appear-



Eucalyptus maculata (Spotted Gum), One Tree Hill,
near Brisbane.

[Photo, C.T.W.]

ing in a longitudinal slit. Seed capsules irregularly urn-shaped, often with a prominently narrowed neck, averaging about $\frac{3}{4}$ inch long, and $\frac{1}{2}$ inch wide; rim variable, often appearing very thin, and at other times fully one line wide (due to the varying angle of the persistent disk); valves deeply sunk, usually 3, but varying 3-4.

Distribution.—A native of Eastern Australia from Gippsland, in Victoria, to the Wide Bay District, in Queensland; from here northwards the normal form is replaced by var. *citriodora*, a variety yielding a very strongly citron scented oil.

Botanical Name.—*Eucalyptus* (see under No. 1): *maculata* from Latin *macula*, a spot due to the bark falling in patches, and giving the trunk a spotted appearance.

Common Name.—Universally known as "Spotted Gum."

Timber.—One of the most valuable hardwoods of the State—used generally for heavy work, except in contact with the ground.

Botanical Reference.—*Eucalyptus maculata* (Hooker), *Icones Plantarum*, tab. 619, 1844.

4.—*Eucalyptus micrantha* (Scribbly Gum).

Description.—A large tree with a smooth white or blotched bark, almost invariably marked with scribbly brown lines. Coppice ("sucker") leaves large, sometimes ovate, but usually ovate-lanceolate and often inclined to be falcate, petiolate, petiole or leaf-stalk about $\frac{1}{2}$ inch long, blade or lamina up to 9 inches long and 4 inches wide, but usually smaller, veining somewhat irregular, main nerves some distance apart (averaging about $\frac{1}{2}$ inch, but variable in this respect), intramarginal vein 1-2 lines from edge. Ordinary (secondary or adult) leaves coriaceous, lanceolate usually somewhat falcate, the upper part tapering to an acute apex, petiole $\frac{1}{2}$ - $\frac{3}{4}$ inch long, blade variable, averaging about $5\frac{1}{2}$ inches long and about 1 inch at the widest part, the midrib alone usually prominent, main lateral nerves fairly distant from one another (2-3 lines apart), intramarginal vein $\frac{1}{2}$ -1 line from the edge. Flowers in simple umbels (or heads) in the axils of the leaves; peduncle rather slen-

der, about $\frac{1}{2}$ inch long, 6-15 flowers in an umbel. Buds club-shaped, calyx-tube tapering at the base into a slender pedicel, measuring with the pedicel about $\frac{1}{4}$ inch long; operculum, hemispherical. Stamens about one line long, the outer ones sterile; anthers of the inner series very small, the cells opening in divergent (at length confluent) slits. Seed capsules very broadly turbinate, about $\frac{1}{4}$ inch in diameter, rim broad (about one line), slightly convex, valves not protruding.



Eucalyptus micrantha (Scribbly Gum), Sunnybank,
near Brisbane.

[Photo, C.T.W.]

Distribution.—A native of Eastern Australia from Southern New South Wales to Central Queensland.

Botanical Name.—*Eucalyptus* (see under No. 1); *mierantha*, from the two Greek words, *mikros*, small, and *anthos*, a flower, referring to the flowers being smaller than those of its near ally, *E. haemastoma*.

Common Names.—Most commonly known as "Seribbly Gum," in allusion to the scribble-like markings almost always present on the trunk, sometimes almost covering it. It is also known as "White Gum," "Sugar Gum," and "Cabbage Gum"; local names also given, however, to other very different trees.

Timber.—"The timber is very subject to gum-veins, and hence is sawn only for cheap purposes. A favourite timber for feneing purposes, particularly rails." (Jolly, in "Notes on the Principal Timbers of Queensland," Forestry Bulletin, No. 2—Department of Public Lands, Brisbane). The timber is a useful hardwood, but suffers in comparison with the better sorts.

Botanical Reference.—*E. mierantha* De Candolle, in "Prodromus Systematis Naturalis Regni Vegetabilis," Vol. 3, p. 217 (1828).

Note on the Botany of the Species.—*E. mierantha* was reduced by Bentham in the "Flora Australiensis" to a variety of *E. haemastoma*; in this he was followed by Mueller, in the "Eucalyptographia," by Bailey in his "Queensland Flora," and for a long time by Maiden in his "Critical Revision of the Genus *Eucalyptus*." In a recent part (Vol. VII., pt. 9) of the last-mentioned monumental work, however, Maiden restores De Candolle's species, and I have now followed.



PROPOSED SYLLABUS OF MEETINGS, 1925.

SATURDAY, March 14, Kuraby.

MONDAY, March 16, Evening Meeting.

FRIDAY, April 10—MONDAY, April 13 (Easter), Amity, northern end of Stradbroke Island.

MONDAY, April 20, Evening Meeting.

SATURDAY, April 25. Visit to home of Mr. R. Illidge, Quay Street, Bulimba, to view his entomological collections.

SATURDAY, May 2-4 (Labour Day), Camp Mountain.

MONDAY, May 18, Evening Meeting.

SATURDAY, May 23, Sherwood. (Visit to Commonwealth Prickly Pear Experiment Station. Leader, Mr. W. B. Alexander).

WEDNESDAY, June 3 (King's Birthday), Riverview. (By train and motor boat).

MONDAY, June 15, Evening Meeting.

SATURDAY, June 27, Queensland Museum (Leader H. A. Longmann, Director).

SATURDAY, July 11, Darra. Object mainly geological. (Leader Dr. E. O. Marks). There are some fine tertiary deposits with a rich collection of leaf impressions of modern plants in the neighbourhood of Darra.

SATURDAY, July 25, Botanic Gardens and Museum (Mr. E. W. Bick, Curator).

SUNDAY, August 8, Upper Brookfield (all day). Train to Indooroopilly, thence by motor wagon.

MONDAY, August 17, Evening Meeting.

SATURDAY, August 22, Sunnybank. Object mainly botanical (Leader Mr. C. T. White). In spite of increased settlement of recent years, there are still a large number of typical Australian flowering plants to be seen at Sunnybank.

SATURDAY, September 12—MONDAY, September 14, Beerburum. Object general. (Leader, Mr. J. C. Smith, Excursion Secretary).

SATURDAY, September 19, Wild Flower Show.

SATURDAY, October 10, Nudgee Beach. Object Littoral Flora and Fauna—particularly of the Margrove orations.

MONDAY, October 19, Evening Meeting.

SUNDAY, October 25, Goocda and Woogaroo Scrub (all day).

MONDAY, November 16, Evening Meeting.

THURSDAY, December 24,—FRIDAY, January 1st (Xmas-New Year). Cootharaba Lakes.

QUEENSLAND NATURALISTS' CLUB.

ANNUAL STATEMENT ON RECEIPTS AND EXPENDITURE, 31st DECEMBER, 1924.

1924	RECEIPTS.			EXPENDITURE.		
		£	s. d.		£	s. d.
Jan. 1.	To Cash at Bank	17	10 2	Dec. 31	By Printing Naturalist	31 10 0
	" Cash in Hand	4	8 10	" "	" Blocks, ditto	2 2 8
Dec. 31	" Member's subs.	49	7 6	" "	" Rent	3 17 6
Dec. 31	" Sales Certificates	10	0 0	" "	" Printing Cards, etc.	2 0 0
Apr. 31	" Surplus Easter Camp	2	10 1	" "	" Excursion Balance	4 6
Sept. 31	" Flower Show	33	0 0	" "	" Flower Show	18 7 4
Dec.	" Sales Q. Naturalist	12	0 0	" "	" Petty Cash	15 0 0
				" "	" Balance at Bank	32 9 3
				" "	" Cash in Hand	2 7 4
Total						
Credit Balance				Total		
				£107 18 7		
				£34 16 7		

Audited and found correct,

C. W. HOLLAND, Hon. Auditor.

G. H. BAKER,

Hon. Treasurer.

9/2/21
PRICE 1/-

VOL. V., No. 2.

JULY, 1925

.. The ..
Queensland Naturalist

Journal of the
Queensland Naturalists' Club
AND
Nature-Lovers' League.

—
"The Poetry of Earth is never dead."—KEATS.

—
The Author of each Article is responsible for the Statements
expressed therein.



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The Queensland Naturalists' Club

— AND —

Nature-Lovers' League.

Official Journal—The Queensland Naturalist.

☐

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☐

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MEETINGS:

Evening Meetings are held at the Brisbane Women's Club Rooms
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Excursions are held once or twice a month from March to December.

The Queensland Naturalist.

JOURNAL OF THE QUEENSLAND NATURALISTS' CLUB
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VOL. V.

JULY, 1925

No. 2.

PROCEEDINGS.

April—June, 1925.

EVENING MEETING, 20th APRIL, 1925.—The President (Mr. W. B. Alexander) occupied the chair. Mr. R. Illidge exhibited specimens of, and read notes on a Case Moth (*Thyridopteryx herrichii*), sent in by Mr. C. McKenzie, of Whalebone Creek, Western Queensland.

The meeting was principally devoted to reports on the Easter excursion to Stradbroke Island. Mr. W. B. Alexander reported on the birds observed. Mrs. W. M. Mayo also spoke on the birds, and recorded having seen a pair of white-winged Black Tern (*Chlidonias leucoptera*), the first record of these birds in Southern Queensland. Dr. E. O. Marks spoke on the geology, and showed specimens of rhyolite and trachyte collected at Point Lookout. Mr. J. E. Young spoke on the general zoology, and exhibited the skull of a Red Wallaby found on the Island. Mr. R. L. Higgins exhibited a number of photographic studies taken during the excursion. Mr. L. Franzen reported on the entomology of the trip, and showed a case of butterflies collected. Other exhibits from Stradbroke Island were plant specimens by Mr. P. Sylow, and vertebrae of a dugong by Mrs. R. L. Higgins.

A vote of thanks to Mr. T. Welsby for his great assistance during the Easter camp-out was carried unanimously.

The President and Mr. G. H. Barker drew attention to the open violation of Stradbroke Island sanctuary by gunmen during Easter, and the Hon. Secretary was instructed to write the Under Secretary, Department of Agriculture and Stock, asking that notice boards be put up at the principal landing places and additional rangers

be appointed for the island. It was suggested that the boating clubs be communicated with, asking their help in upholding the sanctuary laws with regard to the islands of Moreton Bay.

The President read an extract from the daily press dealing with the shooting by three sportsmen of a bag of 300 quail. On the motion of Mr. D. W. Gaukrodger, seconded by Mr. R. L. Higgins, the President and Mr. G. H. Barker were nominated to make enquiries regarding the matter, and if thought advisable institute proceedings, the limit of birds per man under the Game Act being 25.

EVENING MEETING, 18th MAY, 1925.—The Vice-President (Mr. J. C. Smith) presided. The Hon. Secretary (Mrs. W. M. Mayo) reported that following on instructions at the last meeting, she had written the Under Secretary for Agriculture and Stock in reference to the violation of the Stradbroke Island Sanctuary, and had received a reply to the effect that Mr. T. Welsby had been appointed an Honorary Ranger under the Native Birds and Animals Protection Act, and that notice boards would be erected at the different landing places.

The Hon. Secretary on behalf of Mr. C. Dornbusch, of Warwick, read a few notes on the upward growth of the lateral limbs of trees, and exhibited photographs illustrative of Mr. Dornbusch's remarks. Photographs taken on the recent excursion to Stradbroke Island were exhibited by Messrs. Rowley, Hutchins, and Higgins.

The principal business of the meeting was a lecture by Mr. D. A. Herbert on "A Naturalist in the Philippines."

EVENING MEETING, 15th JUNE, 1925.—The Vice-President (Mr. J. C. Smith) occupied the chair. Dr. E. O. Marks referred to the well-marked bora-ring at Camp Mountain, and moved that the Shire Council be written to requesting that steps be taken for the adequate preservation of this interesting ethnological feature. The motion was seconded by Mr. H. A. Longman, and carried unanimously.

Mr. H. A. Longman exhibited a very fine skin of the Tree Climbing Kangaroo *Dendrolagus fulyus*, probably a sub-species of *D. Lumholtzii*. Mr. J. E. Young exhibited specimens of the Giant Earth Worm. He had found these travelling across a road at night. Mr. L. Franzen ex-

hibited (1) a few moths bred from larvae collected on a native tree—*Cupania anacardioides*, (2), a few Phasmids and (3) a small collection of beetles made by Miss Wood, The Caves, Rockhampton. Mr. R. Illidge exhibited specimens and read a few notes on "Insects of the River Mangrove (*Aegiceras*)," and exhibited an interesting set of specimens in illustration of his remarks. Mr. Illidge also gave a few general notes on beetles. Mr. C. T. White exhibited two fruits (*Parinarium laurinum* and *Barringtonia speciosa*), and a seed (*Caesalpinia Bonducella*), sometimes picked up on the ocean beaches of Southern Queensland. The latter two are common in Tropical Queensland, but the first mentioned is not found in Australia, being a native of the Solomon Islands and New Guinea.

—0—

SOME AUSTRALIAN LIFE FORMS AND THEIR SIGNIFICANCE.

**By Prof. E. J. Goddard, B.A., D.Sc., (Queensland
University.**

(Portion of Presidential Address, delivered before the
Queensland Naturalists' Club, 16th Feb., 1925.)

I have chosen as the subject of my address, "Some Australian Life Forms and Their Significance." In doing so, I have no intention of attempting so vast a task as surveying the general realm of the Australian fauna and flora, but propose to limit my attention mainly to certain representatives, with the investigation of which I have had more or less direct concern.

Australia as a continent is unique in that it has been so long isolated from the other continental masses that it has developed a characteristic fauna and flora, and many of the problems which arise in an attempt to elucidate the origin of these forms have a very deep interest directly for those concerned in the study of past and present distribution of life forms in the other continents of the Southern Hemisphere. My object in this

address will be directed mainly towards indicating the special interest which certain selected examples of our fauna possess for the student of distribution, and at the same time to stress the need for more detailed examination of our fauna and flora, not merely from the anatomical, but also from the ecological aspect.

The Oligochaeta, a group of the Annulate worms, including the earthworms and their terrestrial and aquatic allies, is very strongly developed in Australia. The Australian representatives embrace a number of forms of great anatomical, systematic and distributional significance. The class Oligochaeta falls into two divisions, known as the Microdrili (which are generally aquatic and mostly represented by small forms) and Megadrili (which are mainly terrestrial and include many large forms. Whereas the Megadrili has been fairly well investigated in Australia, the Microdrili have been less attentively studied. Naturally the terrestrial forms (mainly Megadrili) have the major interest in respect of zoogeographical problems, inasmuch as the fresh water representatives have greater facilities for a more universal distribution. One family of the Oligochaeta known as the Phreodrilidae, has a special interest, inasmuch as it is restricted to the Southern Hemisphere and enjoys a circumpolar distribution, is strongly represented in Australia, and exhibits characters which are intermediate between those of the typical Microdrili and Megadrili.

In the Microdrili the swollen glandular area, known as the clitellum, is a single cell in thickness and is far forward in position, whereas in the Megadrili the clitellum consists of several layers of cells, and is never to be found in front of the 12th segment. In the Phreodrilidae it agrees in structure with that of the Microdrili, and in position with that of the Megadrili. The minute rods known as setae, occurring in each segment of the body and serving as levers, are partly in the form of long hair-like structures, and partly as sigmoid or S-shaped structures, with a bifid or split free extremity in the Microdrili, whereas in the Megadrili they are S-shaped with a simple extremity. In the Phreodrilidae the setae resemble those of the Microdrili, but the extremity recalls that of the Megadrili, the bifid nature being almost hidden. There are many anatomical features of the Phreodrilidae which recall the Megadrili, or true earth-

worms. The group is represented by worms which do not exceed an inch in length, and although they must be classed as aquatic their habitat is in the mud at the bottom of pools, wells or lakes. The modification of the setae and their approximation in form to those of the Megadrili, or terrestrial earthworms, may possibly be due to the nature of their habitat. Consequently in determining their character as intermediate between those of the Microdrili and Megadrili, we do so for descriptive and not genetic purposes; in other words, we do not necessarily regard them as forms which have led the way from the Microdrili to Megadrili. They might well be specialised descendants of such intermediate forms, and equally well they may in respect of these intermediate characters exhibit merely the results of a Convergent Evolution. It is so easy to be dogmatic in such matters, especially when the distribution of the forms concerned opens up a vista of big problems.

The history and distribution of the members of the group are of very special interest. In 1895 Beddard obtained from a subterranean well in New Zealand a new aquatic genus which he described under the name *Phreodrilus*. The form was so peculiar that it could not be included in any of the known families of this group of worms. It was then found that forms which had been found in South America and the Falkland Islands, and had been described under another name, belonged to the same genus. Since then a special family has been created, to include these forms and others since described from various parts of the Southern Hemisphere.

The family Phreodrilidae now includes the following genera:—

Phreodrilus—Described by Beddard, and occurring in Falkland Islands, South America, New Zealand, Campbell Islands, and Kerguelen Island.

Phreodriloides—Described by Benham, from Blue Lake, Mt. Kosciusko.

Astacopsidrilus—Described by Goddard, from the freshwater Crayfish *Astacopsidrilus*, N.S.W.

Tasmaniaedrilus—Described by Goddard, from Ben Lomond, Tasmania.

Gondwanaedrilus—Described by Goddard, from South Africa.

The anatomical characters of the forms are as follows:—

Phreodrilus—Spermathecae and pores distinct.
Wall distinctly glandular.

Astacopsidrilus—Spermathecae distinct, but ducts communicating with female ducts. Wall distinctly glandular.

Gondwanaedrilus—Spermathecae distinct, but ducts communicating with male penial chamber.

Tasmaniaedrilus—Spermathecae evanescent and ducts absent. Wall thin and non-glandular.

Phreodriloides—Spermathecae and ducts absent.

It will be seen that we have now an undoubtedly complete anatomical series, and that the family which at first known only by the genus *Phreodrilus*, was considered so unique in regard chiefly to its setae and spermathecae, can be split into genera whose marked differential characters concern both these structures.

Anatomical evidence supports the idea that the family is an ancient assemblage, and their habitat taken into consideration in conjunction with their circumpolar distribution, is interesting. With the exception of one genus, which is unique among the group in that it lives in close semiparasitic association with the freshwater crayfish—*Astacopsis*—of Australia, they are restricted to cold habitats. These conditions are obtained in some cases through the latitude of the habitat, in others by extreme bathymetrical isolation, assisted by the seasons. In South Africa, for example, they have been collected on Wellington Mountains, Stellenbosch Mountain, and Table Mountain, but further, not only does investigation show that they are inhabitants of mountains solely, but also that they disappear in some manner or other—no doubt into the soil—during the hot months of the year.

In noting their restriction to cold habitats and to the Southern Hemisphere, it must be borne in mind that no representatives have been found in the Northern Hemisphere, which has been much more seriously investigated in the past. This is very significant. The fact that they are restricted to habitats with low temperatures may be rationally interpreted as signifying that such a common feature is characteristic of the group, and in all pro-

bability of their common ancestral stock, or as the result of their inability of carrying on the struggle for existence in habitats where other forms of *Oligochaeta*, etc., find favourable conditions.

The question now arises, whether the *Phreodrilidae* enjoyed at one time a much wider distribution, and have since disappeared in most parts, or whether we are to regard them as forms which made their appearance in the Southern Hemisphere.

Now it is interesting here to note that although none of the group is known in the Northern Hemisphere, yet in that region there occurs a family—*Lumbriculidae*—which is unknown in the Southern Hemisphere. Further, this latter family occupies a position of the same phylogenetic status as do the *Phreodrilidae* between the two main divisions of the *Oligochaete* worms, and this is significant when their respective restricted distributions are considered. Both may have arisen, and no doubt did originate, from a common stock, and it seems highly probable that they have been evolved in the region now occupied by them. That there has been no intermingling of the two races, and no spreading into the other hemisphere by either of them, and the fact that both have a circumpolar distribution, must signify a close association of the land areas of the Northern Hemisphere at some period, and a corresponding intimate relation between the continents of the Southern Hemisphere. Otherwise it is hard to understand why two such groups should have such a complete circumpolar distribution in their respective hemispheres.

Possibly the *Phreodrilidae* have been preserved for us on the tops of the mountains, and apparently in abundance in South Africa, as living relics of the fauna which flourished in that old land area—Gondwanaland—which once linked up our Southern continents, stretching across the Atlantic and Indian Oceans. If we can regard their adaptation to low temperatures as a common ancestral character, they may be forms whose distribution was greatly helped in a circumpolar direction by the glacial conditions which obtained during the time of existence of Gondwanaland.

These remarks may be construed as signifying one of two conclusions:—

- (a) The living Phreodrilidae are the descendents of an old cold climate ancestral stock which once inhabited the Southern lands, and are now restricted to areas where these conditions are now attained; or
- (b) The Phreodrilidae are the remnants of a stock which has been unable to meet the demands for existence under normal and temperate conditions, and consequently have taken up an abode, or have persisted in places where the struggle for existence is far less keen.

Before discussing these conclusions, we will mention several facts which will tend to make the issue more easily understood.

Firstly, the Phreodrilidae undoubtedly show marked affinities, when phylogenetically considered, with the Lumbriculidae, and the latter are as truly restricted to the Northern, as the former to the Southern Hemisphere.

Secondly it would appear that the Phreodrilidae are not capable of migrating across sea barriers, as are so many of the Oligochaeta. They do not meet with the same chances of migration at the hands of man like many terrestrial Oligochaeta—a fact which is explained by their habitat, and that the chief medium serving for conveyance in the hands of man is either soil or water from restricted localities, and which is supported by the absence of Phreodrilidae except in the restricted habitats mentioned above, and by the fact that as yet no species is known as being common to any two of the land areas where the family is represented. In this connection we cannot but point out that in no division of the Invertebrata are the species more valid since they are framed without exception not only on exceedingly well-marked external differences in connection with setae, etc., but also on peculiarly accentuated internal differences. There is no room for synonymy in any of the group.

The restriction of the family to the Southern Hemisphere certainly finds its parallel in the case of many other groups, but it would seem that in the case of the Phreodrilidae no explanation other than that of the existence at one time of a direct connection between the continents of the Southern Hemisphere is satisfactory. The Lumbriculidae which occupy a corresponding phylo-

genetic importance are as truly restricted to the Northern Hemisphere, and thus we are led to conclude that each group has been evolved in the respective hemispheres. That being the case, we might then regard the existing members of the family as the descendants of an ancient Phreodrilid ancestor, which might have flourished as early as, if not earlier than, Permo-Carboniferous times on ancient Gondwanaland.

The interest attaching to these comparatively insignificant forms indicates that a great deal of information about our Australian Invertebrate fauna still awaits the naturalist and biologist. This particular division of our fauna has so far been studied in detail by one worker only—I refer to the aquatic Oligochaeta. Naturally, larger forms have attracted the attention of naturalists, but this brief address may serve to show that great results may repay the efforts of the naturalist who interests himself in the invertebrae fauna. There is no continent which should hold greater attractions for the naturalist than Australia. The small group on which I have touched has as yet been hardly scratched, and yet it represents only a very small portion of our invertebrate stock, and only a small fraction of the many interesting primitive invertebrate fauna of the Southern Continents.

The forms mentioned in this address raise the problem of the past relations of Australia to the other continents. Many Australian animal forms constitute classic references used in support of this or that theory of land connections. In this direction there has been a tendency to assume, because the distribution of certain forms satisfies the demands of a particular theory that that theory has been proved. In this way there has been developed a somewhat unscientific mode of attack on the problem, and the conclusions attained must yet be considered more or less arbitrary. It has become the practice to too frequently limit the relationship of forms on an assumed genetic basis to observations of a purely morphological character, and this criticism applies to the procedure whether fossil or living forms are concerned. The unfortunate tendency in this connection is that we arbitrarily simplify the vagaries and complexities of an evolutionary process and dive for a certain point which we wish to reach. In following the distribution of particular forms of life we are guided by the geographi-

cal occurrences of fossil and living representatives. Knowledge of the earliest occurrence, as revealed, say, by fossil forms, leads us to assume that the locality in question represents the centre of origin, and from this centre we follow the radiations in subsequent times and interpret the geography of those times accordingly. Provided we limit our conclusions to identical forms we may be right, but when we attempt to interpret the distribution of representatives of a group on these lines we may be quite wrong. We know far too little about the processes of organic evolution to make such assumptions—an opinion may be helpful inasmuch as it stimulates research, but a final conclusion is not attainable.

You are all familiar with the theory which would explain the present distribution of Marsupials by assuming a connection between Australia and South America, via the Antarctic Continent. The Marsupials are limited at the present day to the Australian region and America (mainly South America). Fossil records indicate a one-time wider distribution, including Europe, but the forms represented in this wider area of occurrence are limited to those carnivorous types which we designate as Polyprotodonts. The living forms include the herbivorous Diprotodont, as well as Polyprotodonts, and the peculiar South American form, *Cenolestes*. This occurrence of the Diprotodonts has generated the idea that they must have evolved in one area and migrated to the other, thus suggesting an Antarctic land bridge; movement of the forms along any other route such as via the Pacific coasts of America and Asia being apparently precluded by the absence of any remains of these forms. The theory is attractive, because it would serve to explain the distribution of other forms, but the same support can be afforded to other counter-theories. There is no reason beyond that of orthodox prejudice why the Diprotodonts could not have been evolved independently in the two areas where they now exist. Without calling on an Atlantic land bridge, we might explain the present areas of occurrence of the Marsupials as representing each an asylum where the relics of a one-time universal Marsupial stock have been preserved. The limitation of their area of distribution might have taken place at a time when the existence of herbivorous fauna was at first impossible, but with the evolution and differentiation of the Angiosperms or flowering plants the possibilities of pasturage were opened up.

We know nothing of the mechanism behind organic evolution, and we may best summarise our position with respect to the possibility of Convergent-Evolution in respect to the origin of the Diprotodont marsupials by remarking that the existence of such was in all probability previously impossible. There is no more romantic aspect of biological speculation than that concerned with the elucidation of the problems of distribution, and it is largely due to this alluring influence that there has been too marked a tendency to allow the imagination to run away from scientific control. It is certainly time that an Antarctic link with Australia during Tertiary times would explain many occurrences of faunal and floral forms, but the same argument applies in the case of other theories, say, such as that which would explain the resemblances between certain types of fauna and flora in the Southern Continents as being due to a migration from the North and their preservation in the Southern areas, or would regard them as persistent representatives of a more or less universal stock. It is highly probable that no one of these theories holds the ground to the exclusion of the others, and that any rigid application of one theory leads us from the truth in respect to any particular group. We have a similar attempt to over-ride complexities in the attempt to decide affinities of groups of animals and plants. Many treatises in an attempt to graphically illustrate the resemblance of various groups—I refer to classes and families, etc.—make use of phylogenetic trees, in which the various branches represent individual classes, families, etc. The idea serves a good purpose in that respect, but unfortunately there is too often a tendency for people to treat such graphic keys in a too literal manner, and to interpret them as a time-table indicating the relative times of appearance of the groups by noting the point on the main stem from which the branches arise. In other words, organic evolution is regarded as working in a patently mechanical fashion. It is much more probable that complexities and vagaries hide the process of evolution from our gaze. Such people are satisfied to explain the evolution of classes while the origin of species still represents a problematical question. Much the same position obtains with respect to the problems of distribution. In the first place we must recognise that a knowledge of

the complete line of ancestry of any forms considered must be available, that a knowledge of the extent to which convergent evolution has been influential must be accessible; that a deep effort to attack the problems of distribution by paying greater attention to that combination of structure, function and environment which we term Ecology, and which has characterised a big proportion of the more truly scientific botanical research of later times. Geological evidence in support of land connections is often hailed, but we must bear in mind that in most cases the evidence is not geological, but palaeontological, that is to say, it is based on a knowledge of the distribution of extinct animals and plants, the investigation of which must be exclusively morphological. The palaeontologist is really a biologist, and his mode of interpreting the distribution of forms is akin to that adopted by many biologists.

When we come to consider the problem of land bridges stretching across oceanic areas, geological evidence should be essentially of a dynamic nature, and such evidence would appear to be non-available until a more exact knowledge of earth physics is accessible. When this help is obtainable, many of our problems of distribution might be simplified and there could be reflected therein a distinct advance in our knowledge of the actual relationship of many animal and plant forms. There is indeed in the present state of our knowledge much truth in the statement that inter-continental land bridges cannot be proved by known facts of the distribution of animals and plants, but if a land bridge could be proved by some other means then from the facts of distribution we could in a comparative way state the time when that bridge broke down.

In any survey of the history of the Australian fauna and flora we have at hand considerable biological and geological information of a reliable nature, such as the existence of a large sea in Cretaceous times separating western and eastern portions of the now continuous Australian Continent, and the decided intrusion of a Malaysian element into our Northern flora, and to a considerable extent into certain groups of our fauna, such as the insects. These factors would appear to be beyond dispute, but in addition certain land bridges have been suggested to explain the "consanguinity" of life forms in Australia and other parts of the Southern Hemisphere.

The earliest of these, that is to say, the earliest which might be considered as having any possibility of leaving any traces in respect of existing forms, was that of Gondwanaland. This huge continental bridge is supposed to have connected the continents of the Southern Hemisphere and India during Permo-Carboniferous times, a period during which the main coal-measures of these areas were being laid down. The existence of this land mass has been postulated on the presence of a characteristic flora, certain other fossil and general geological evidence. There is much evidence to support the theory of such a Permo-Carboniferous land connection, but the nature of the connections itself is in question. Comparatively recently it has been suggested that the continents of the Southern Hemisphere and India, together with the Antarctic continent, represent the remains of a huge continent more southerly in position than the present land areas, and that India, Australia, South America, and Africa occupy their present position as the result of a drifting away from the original position as the continent, so to speak, fractured. There is a great amount of evidence to support this theory, but it is beyond the limits of this address to discuss the merits of these two theories of Gondwanaland. It should suffice for our purposes to recognise that continuity is suggested for the Southern Continents in Permo-Carboniferous times—a period which saw the mere beginnings of the earliest types of Reptiles—mammals and birds were non-existent. Is it possible that the apparently close relationship of certain lower types of animal life in the continents of the Southern Hemisphere may be due to the fact that these forms represent descendants from a fauna which then inhabited a common land mass? (It is a well-known fact that one outstanding characteristic of the Southern Hemisphere is a large number of so-called primitive forms.) Probably no group is of greater interest in this connection than that described to you this evening, since no other group investigated offers, in my opinion, more definite help to the solution of distributional problems.

The land connections which have been postulated to explain the distribution of higher forms of animals and plants concern a much later or more recent date.

The elucidation of these later continental inter-relationships invites more intimately a study of the

higher forms—and in this connection, especially on the side of ecology, much remains to be done. The evidence available at present is inconclusive.

The invertebrate fauna possess deeper interest still, as it may be concerned also with problems of distribution long antedating these. The Phreodrilidae, I think, present very strong evidence for intercontinental associations in the Southern Hemisphere—possibly in Permo-Carboniferous times.

My object will have been achieved in this address, if I have at least interested some in the problems of the Australian invertebrate fauna, and have awakened interest in others in the problems of Australian Natural History in general.

—o—

A NOTE ON THE USE OF CYCAD WOOD FOR BRAKE-BLOCKS.

By Prof. S. B. J. Skertchly (Molendinar.)

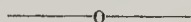
The timber-getters on our mountains are a fine race, after my own heart. Their calling demands unusual skill; it is no fool's job to negotiate a team of 16 bullocks hitched to a log-laden truck, through forest and scrub where no roads be, down slopes like church roofs. Life and property hang upon the grip of the brakes, and for brake-blocks nothing is so good as cycad wood (*Macrozamia Denisoni*). They call the trees match-box trees (from the use they make of the hollowed nuts), and *zamia*, a term that has illicitly usurped the legitimate word *Cycad*. Hardwood is quite useless for brake-blocks. It simply polishes, "becomes greasy," smokes and collapses. Softwoods are better, but at a pinch they also "smoke" and break up, whereas cycad wood "woolies up," as they say, and grips. Even it fails and goes to pieces in wet weather. Now this "woollying up" is the secret of its supremacy, and comes about in this wise.

The woody zone or xylem (only 0.40 in. in my 10 inch section), is broken into spurious "annual rings" by the intermittent cambium layers, which, though they

decay, still leave zones of weakness. There are three in my specimen (0.133 in. wide), and it is further segregated out by the medullary rays, which average 0.20in. apart; so that the woody strands are not only rather loosely held together, but divided into segments, like the strands in a rope. The isolated fibro-vascular strands further help the woolliness out, and the armour-sheathed bast ring holds all together, till it scrubs like a coco-nut husk.

The only other woods the timber-getters fancy, and these in a secondary degree, are yielded by the grass-trees and treeferns, in both of which the woody fibres are isolated. The only hardwood they find is of any use is that of *Banksia*. (I think it is *B. integrifolia*, that being commonest on our mountains.)

Now in wet weather these woody fibres shrink. If you've ever had to turn out of your warm bed on a wet night by a twanged and parted tent-rope you'll appreciate this property, or if you've had to coil down a wet cable. The result is the contracting fibres snap with the grinding friction, and the brake-block goes to pieces. Like the policeman's, the timber-getters' lot is not always a happy one.



BIRDS OBSERVED DURING THE NATURALISTS' CLUB CAMP OUT AT CAMP MOUNTAIN, MAY 2-4.

(By W. B. Alexander, M.A.)

During the two days spent in the locality, 47 species were identified. The birds seen in the forest country and the cleared paddocks were mostly the common species of the district, and it is not necessary to enumerate them. The most interesting was a Crimson Rosella or Lory (*Platyecreus elegans*), a bird I have not seen so near Brisbane before. A great part of the country is fairly thickly covered with lantana, and the thickets of this obnoxious plant seemed everywhere to contain Coachwhip Birds (*Psophodes olivaceus*), whose notes were constantly heard.

From the ornithological viewpoint, the most interesting spot in the district was a small area of "scrub" remaining in a valley not far from the aboriginal "bora-ring." It was too far from the camp to be properly explored, but two brief visits were paid to it. Unfortunately the undergrowth of Lantana is so thick that it is almost impenetrable. In this patch of scrub the following species not seen elsewhere in the district were noted: Rufous Thrush (*Colluricincla megarrhyncha*), Pied Caterpillar-eater (*Campephaga leucomela*), White-browed Scrub-wren (*Sericornis frontalis*), Lewin Honey-eater (*Meliphaga lewini*), Little Cuckoo shrike, (*Graucalus mentalis*), Yellow Robin (*Eopsaltria australis*). The Scrub-wrens were especially plentiful and were singing loudly.

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CORRECTIONS.

The following corrections should be made in Mr. Illidge's "Notes Accompanying Exhibits," which appeared in the last number of the "Queensland Naturalist." In the last line of paragraph (a) for Indooroopilly read Yeerongpilly, and in first line of paragraph (c) for Myrmelleon read Myrmeleon; also on p. 2, of proceedings for pharacantha read Phoracantha.

PROPOSED SYLLABUS OF MEETINGS

JULY—DECEMBER, 1925.

Saturday, July 11.—Darra, object mainly geological. (Leader, Dr. E. O. Marks).

Monday, July 13.—Evening Meeting.

Saturday, July 25.—Botanic Gardens. (Leader, Mr. E. W. Bick, Curator.)

Sunday, August 8.—Upper Brookfield (all day). Train to Indooroopilly, thence by motor wagon.

Monday, August 17.—Evening Meeting.

Saturday, August 22.—Sunnybank, object mainly botanical. (Leader, Mr. C. T. White, Govt. Botanist)

Saturday, Sept. 12.—

Monday, Sept. 14.—Beerburum, Object, general. (Leader, Mr. C. J. Smith.

Saturday, Sept. 19.—Wild Flower Show.

Saturday, October 10.—Queensland Museum. (Leader, Mr. H. A. Longman, Director.)

Monday, Oct. 19.—Evening Meeting.

Sunday, October 25th.—Goodna and Woogaroo Scrub (All day).

Monday, November 16.—Evening Meeting.

Thursday, December 24—Friday, Jan. 1.—(Xmas—New Year), Cootharaba Lakes.

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Journal of the
Queensland Naturalists' Club
AND
Nature-Lovers' League.

"The Poetry of Earth is never dead."—KEATS.

The Author of each Article is responsible for the Statements
expressed therein.



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The Queensland Naturalists' Club

— AND —

Nature-Lovers' League.

Official Journal—The Queensland Naturalist.

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MEETINGS :

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PROCEEDINGS.

EVENING MEETING, 20th July 1925.—The president (Mr. W. B. Alexander) occupied the chair. The principal business of the evening was a lecture illustrated by Mr. H. A. Longman on "Fossil Man—Some Recent Discoveries" a number of specimens of skulls and casts and also a series of lantern slides were given in illustration of his remarks.

Some fine specimens of *Pseudotaenia ajax*, a beautiful buprestid beetle were tabled by the late Mrs. Hobber. —Dr. E. O. Marks exhibited specimens of a Net Fungus (*Clathrus* sp.) in the egg stage.

EVENING MEETING, 17th August, 1925.—The president (Mr. W. B. Alexander) occupied the chair. The principal business of the evening was the screening of a number of slides prepared by Mr. R. L. Higgins, of Queensland Wild Flowers; the slides were explained by the Government Botanist (Mr. C. T. White). Mr. R. L. Higgins exhibited a few seeds of *Macrozanonia macrocarpa*, a native of the Malayan region, and extending to New Guinea. Mr. W. B. Alexander exhibited a volume of Dampier's "Voyage to New Holland, etc., in the year 1699," containing the earliest illustrations of Australian plants. Mr. G. H. Barker exhibited a flowering spray of *Boronia pinnata* from Stradbroke Island, collected by Mr. Thos. Welsby, who stated that the flowering season was early this year. The exhibit was commented on by Messrs. White, Herbert, Longman, and Nixon. Mr. White suggested the desirability of making exact phenological observations, and this suggestion was supported by the President (Mr. W. B. Alexander) who thought that a list of common species, checked over several seasons, would be useful to all.

Mr. H. A. Longman exhibited a portion of a paddle of an Ichhyosaurus from the Cretaceous of Western Queensland, also a piece of vesicular basalt sent to the Queensland Museum from Galah Creek as a fossil sponge.

WILD FLOWER SHOW AND NATURAL HISTORY EXHIBITION, 19th September, 1925.—

The annual Wild Flower Show this year was a decided success, both from the display of exhibits and the attendance of the public. It is estimated that between 800 and 1000 people visited the Albert Hall during the afternoon and evening. A great deal of the success of the show was due to the Hon. Secretary (Mrs. W. M. Mayo) who spared no efforts in working to bring about this desirable result.

Competition among the school exhibits was very keen, and the judges (Messrs. Herbert and White) found considerable difficulty in awarding the prizes. The schools successful in obtaining prizes for their respective districts were:—North Coast (Yandina), South Coast (Canungra), Granite Belt (Stanthorpe), Downs and inland (Ravensbourne).

There was a good display of wild flowers from different parts of the country. One of the outstanding features of this year's exhibit was the wonderful display of wild flowers of the Upper Albert River, staged by Mrs. S. and Mr. Densil Curtis. The flora of Tambourine Mountain, was again well represented by a fine collection of orchids and other flowers, staged by Miss Hilda Geissmann. Stradbroke Island was well represented by flowers collected by Mr. Thos. Welsby, Mr. W. M. Mayo and others, and the Moreton Bay table, with its Boronias and other flowers, was much admired.

Exhibitors to the general display of wild flowers were: Messrs. Welsby, Mayo, Simmonds, Young, Barker, and Morwood (flowers from Moreton Bay); Mr. R. A. Campbell, flowers from the Northern Rivers District, New South Wales; Mr. and Mrs. Pegg (Burleigh Heads), Miss Mabel Birt (Molendinar), Miss Murphy (Brisbane), Dr. E. O. Marks (Brisbane), Miss Hope Webb (Caloundra), Mrs. Gordon (Burleigh Heads), and Miss Wood (Rockhampton).

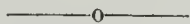
Representative collections were sent by the Naturalists' Club of the following States:—New South Wales,

South Australia, and Western Australia. These exhibits attracted a great deal of attention, and surprise was expressed at the excellent manner in which the flowers had carried.

Mr. Hayes, of Kyogle, forwarded specimens of wild flowers, also a specimen of the mistletoe (*Notothixos subaureus*) growing direct on a host tree.

Thanks are also due to the Director of the Botanic Gardens (Mr. E. W. Bick) for the loan of native plants in pots for decorative purposes.

A fine series of the more striking shells of Moreton Bay was staged by Mr. J. H. Simminds, Senr. In entomology, exhibits were staged by Miss Illidge (Butterflies), and Mr. L. Franzen (Neuroptera). Mr. Hermann exhibited some beautiful examples of South Sea Islands mat-weaving. The Queensland Museum tabled an exhibit illustrative of the animal and bird life of the State. The photographic section, in charge of Mr. W. J. Sanderson, was an outstanding feature of the show. Among those contributing to it were:—Mr. R. L. Higgins (coloured photographs of wild flowers), Mr. Fenton Robinson (nature studies), Mr. Gaukrodger (bird studies from Central Queensland), Mr. W. R. Colledge (photomicrographs of rotifers and other pond-life), Miss Geissmann (Nature Studies from Tambourine Mountain), and Mr. Sanderson (scenic views). A number of early coloured plates of wild flowers was shown by Mr. Davies.



FOSSIL REMAINS OF MAN.

Resumé of Lecture delivered before the Queensland Naturalists' Club, 20th July, 1925, by Mr. Heber A. Longman, Director, Queensland Museum.

The lecturer gave a brief account of the fossil remains of man, with special references to some of the more recent discoveries.

The outstanding characteristics of the following remains were reviewed:—Eoanthropus, or the Piltdown Man, the Talgai Skull from Queensland, the Boskop Skull from the Transvaal, *Homo rhodesiensis* from a cave in Rhodesia, the Wadjak skulls from Java described by Dubois in 1920, the fossil teeth from Nebraska

(Hesperopithecus), and the Taungs skull described by Professor Dart as *Australopithecus africanus*. Neanderthal man and the famous *Pithecanthropus* skull from Java were also discussed. These remains were illustrated by casts and lantern slides. Although these literally "dry bones" might not seem attractive, the subject was a most fascinating one, and should appeal to all naturalists. The significance of some of these fossils had been exaggerated, and in one or two cases reconstructions had appeared in the popular press that were not strictly warranted by the evidence. Certain fossils were so fragmentary that their real significance was in dispute. There was undoubted evidence, however, for the existence of men or proto-men in the past that were far lower, and in several respects more ape-like, than the most primitive races living to-day. It was also evident that the range of variability exhibited by men to-day, remarkable though it was, was quite inadequate to account for the greater divergencies found in the past. These facts, in the opinion of the lecturer, shed definite light on the ancestry of man, and, even on fossil evidence alone, afforded proofs of human evolution.

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**NOTE ACCOMPANYING EXHIBIT OF A BAG-MOTH
(*Thyridopteryx herrichii*.) CASE FORWARDED
BY MR. C. MCKENZIE, YALEBONE
CREEK, VIA ROMA.**

By R. Illidge.

The larva of this particular species (the male moth of which is very thinly sealed on the wings, and hence is somewhat bee-like in appearance) builds its long oval case of seven segments, each being strongly ribbed lengthways, and connected with a circular rib top and bottom. It is suspended by a tube of silk from the anterior end, which is attached to a twig or other object, and has also another at the posterior end. Both these tubes are finely pleated and capable of considerable expansion: the first is used by the larva for feeding purposes, and can be detached, and the case moved by it as required, until just before its change to pupa it is firmly fastened down; the second, or anal tube, is for the ejection of frass, and also as hereafter described.

The case of this species is composed of very strong woven silk entirely free from twigs or leaves. In another

species, *Thyridopteryx* (*Hyalarecta*) *hubneri*, the simple silken balloon case is quite hidden under a dense shingle cloak of pieces of the leaves of the plant on which it feeds. Again, in *Metura* (*Oiketieus*) *elongata*, the dwelling of which is several inches long, also of the same strong silk, but covered with short pieces of twigs from half an inch to about an inch in length, whereas *Clania ignobilis*, another remarkable form, makes a cylindrical silken dwelling, and uses three or four sticks much longer than it, filling in with shorter pieces strongly interwoven between.

Of the family *Psychidae*, to which these curious insects belong, are other genera and species which are Australian, though the family is probably cosmopolitan.

A remarkable fact about the economy of these insects is that the female never leaves the pupa-shell, but the male is provided with a long extensible abdomen so as to be able to reach inside the case for the purpose of fertilization of the female, the latter having no trace of wings, but is just a pupa-like bag of ova, which hatch out in her body, as in various blow-flies, emerging therefrom, and passing out through the anal tube of the case to form their own habitations and carry on the work for which nature intended them.

Of all these species, the shingled bag-moth is probably the greatest pest about Brisbane, and few trees are exempt from its attacks.

Having cut open and examined the internal arrangements of the case of *T. herrichii* obtained by Mr. McKenzie, it was at once seen to be that of a female from the eggs of which young larvae had escaped. The empty body (a shell) is surrounded by a soft but very strong white silk, which fills up the entire cavity between the body and case, being especially dense round the body of the insect. There is no evidence that the eggs are extruded from it into this enveloping silken mass. The extrusion, therefore, must be from the anal extremity of the body into the tube and of living larvae, that are capable of passing through, as has been frequently observed.*

Professor McCoy, in the "Prodromus of the Zoology of Victoria," states:—"From observations made by Mr.

*It is a moot point as to whether the female is or is not able to push her anal extremity into the tube, and so expand it to pass out the larvae from her body.

Kershaw, that the female remains in the pupa case, and this hardened covering splitting open for a short distance at the posterior end allows of all the functions necessary for a continuance of the species, and immense numbers of young are brought forth, not in the egg state, as hitherto supposed for all moths, but as exceedingly minute perfect larvae." This, he states, "is confirmed by no eggs having been found in the cases."

However, the eggs are contained in the body of the female, and hatch out therein, the larvae not being extruded into the silken case, where they would be entangled and smothered in the mass of silk, but issuing forth from the elastic posterior tube of same in long strings, which, upon reaching their objective food plant, each larva proceeds to make its own tiny case, and after each ecdysis, forms a new one. From this same tube the male moth issues from the case in which it is contained, as may be seen from the cast skin of the pupa hanging therefrom. The anterior end of the case being sealed up by its suspension, cannot be used for that purpose, consequently the male larva changes its position in the case before pupation.

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**NOTES ON THE BIRD-LIFE OF AMITY POINT,
STRADBROKE ISLAND, AS OBSERVED
DURING THE EASTER CAMP-OUT, 1925.**

By W. B. Alexander.

In such a brief visit at a time of the year when birds are comparatively silent, it was not to be expected that a very large list of species would be compiled. I identified just 40 species, but several that I did not meet with were observed by Mrs. Mayo and Messrs. Young and Barker.

The extreme northern end of Stradbroke Island did not appear to present such a variety of habitats as is found at the southern end, scrub or jungle being entirely absent. The bird-life was to a considerable extent divisible into zones corresponding with the vegetation, and it may perhaps best be treated from this standpoint.

Beginning at the northern end, the first species to claim attention are the sea-birds. Of these the diving birds which obtain their food by following fish under the water were represented by the Pied Cormorant or Shag (*Phalacrocorax varius*) small parties of which fre-

quently passed the camp on their way to and from their fishing grounds. Of the terns, which also live on fish, but obtain them near the surface by plunging down from the air, I only identified the Caspian Tern (*Hydroprogne caspia*) and the Lesser Crested Tern (*Sterna bengalensis*) but Mrs. Mayo noted several other species.

Of birds which gain their livelihood chiefly by picking up dead marine creatures washed up on the beach or floating on the water, but which may occasionally snatch a fish from near the surface, I noted numerous Silver Gulls (*Larus novaehollandiae*) and Whistling Eagles (*Haliastur sphenurus*), also several White-breasted Sea-Eagles (*Haliaetus leucogaster*) and a pair of White-headed Sea-Eagles (*Haliastur indus*.)

The wading birds, which gain their livelihood by probing the mud-banks and flats at low tide in search of worms and molluscs seem to retreat to the wide sandy ocean beaches to sleep during the periods of high tide. Large parties of them passed the Point in flocks, coming in through the South Passage when the tide was getting low, and going out when it was rising. Most of these were Siberian visitors, which were due to leave us within a few weeks for their northern breeding grounds, though many of them always seem to remain behind in Moreton Bay, where most of the species are to be seen all the year round. As the flocks of waders flew past it was difficult to identify them, but the commonest were Sea Curlews (*Numenius cyanopus*) Bar-tailed Godwits (*Limosa lapponica*) and Lesser Golden Plovers (*Pluvialis dominicus*). I noted one of the last-named on the beach near the creek in full breeding plumage, with a deep black breast.

Two local waders, which spend the whole of the year on our beaches, and breed there, were also noted: The Red-capped Dotterel (*Charadrius ruficapillus*) and the Pied Oyster-catcher (*Haematopus ostralegus*.)

Proceeding inland we find behind the beach a greater or less extent of grassy dunes with fresh-water pools in their hollows, the latter sometimes full of rushes. This being the only open country in this part of the island, certain birds which like open spaces seemed to be confined to this belt, and to the clearings near the houses. Most characteristic is the Australian Pipit or Ground-lark (*Anthus australis*), but other birds which I noticed here and not further inland were the Welcome Swallow (*Hirundo neoxena*) and Peaceful Dove (*Geopelia*

placida.) Those two familiar birds the Black-and-White Fantail or Willie Wagtail (*Rhipidura leucophrys*) and the Magpie-lark or Peewee (*Grallina picata*) seemed to be commoner in the clear area than further inland. There is little doubt that the clearing of bush-land for cultivation has led to a great increase in the numbers of these two species in Australia generally. They did not appear to be specially common on this island, where clearing has not been attempted.

On the banks of fresh-water swamps in the cleared area I saw a Black-fronted Dotterel (*Charadrius melanops*) and a White-fronted Heron or Blue Crane (*Notophoxyx novaehollandiae*), birds which I did not see elsewhere.

Just south of the creek mangroves begin to fringe the coast and extend thence southwards. I did not explore the mangrove belt, which doubtless shelters the four species characteristic of the mangrove formation in Moreton Bay, viz., the Mangrove Bittern (*Butorides striata*), Mangrove Kingfisher (*Haleyon chloris*), Mangrove Warbler (*Gerygone cantator*) and Fasciated Honey-eater (*Meliphaga fasciolaris*).

Penetrating inland from the open grassy dunes at the north end of the island one comes to higher sand-hills covered with trees, amongst which banksias predominate. In this belt the White-cheeked Honey-eater (*Meliornis sericea*) was very abundant, but it was also found sparingly further inland.

The central part of the north of the island appeared to consist of ridges clothed with a variety of trees and an undergrowth of bracken, alternating with swamps surrounded with tea-trees. Here I met with a considerable variety of perching birds on the timbered ridges or in the tea-trees, but the swamps and reed-beds seemed to be entirely destitute of bird-life.

Everywhere in this country the Brown Honey-eater (*Stigmatops oenalaris*) was by far the commonest bird, and its varied notes, some of them very harmonious, were heard on all sides. Other nectar-lovers present were the Leatherhead (*Tropidorhynchus corniculatus*), Little Friar-bird (*Philemon citreogularis*), Sanguineous Honey-eater or Bloodbird (*Myzomela sanguinolenta*), White-chinned Honey-eater (*Melithreptus albogularis*) and Scaly-breasted Lorikeet or Greenie (*Trichoglossus chlorolepidotus*.) The insect-eaters included the Grey



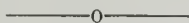
Cabbage Gum (*Angophora lanceolata*), Warwick.
Photographed June 3, 1913.



Cabbage Gum (*Angophora lanceolata*). Same tree as above.
Photographed April 10, 1925.

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Fantail or Cranky Fan (*Rhipidura flabellifera*), Rufous Fantail (*R. rufifrons*) Brown Tit (*Acanthiza pusilla*), White-rumped Wood-Swallow (*Artamus leucorhynchus*), White-Throated Tree-Creeper (*Climacteris leucophaea*), and Golden-breasted Whistler (*Pachycephala pectoralis*). With regard to the latter bird, it was remarkable that no males were seen, though birds in female plumage were fairly frequent. In at least one instance the bird had a considerable amount of yellowish colour beneath the base of the tail, a characteristic of the females of this species, which I have previously noted on Stradbroke Island, but not on the mainland adjacent. Other birds seen in this country were the Crow (*Corvus cecillae*), Collared Butcher-bird (*Craictius torquatus*), Black-faced Cuckoo-shrike or Blue-Jay (*Graucalus novaehollandiae*), Bar-shouldered Dove (*Geopelia humeralis*), Mistletoe-bird (*Dicaeum hirundinaceum*) and Red-browed Finch or Red-head (*Aegintha temporalis*). At night a Boobook Owl (*Ninox boobook*) was heard calling, and one afternoon a Wedge-tailed Eagle or Eaglehawk (*Uroaetus audax*) was seen soaring high over the hills and trees.



VERTICAL GROWTH OF TREES.

Mr. Conrad C. Dornbusch, of Warwick, writes:—"From time to time there have appeared in the newspapers discussions as to whether the limbs of trees grow upward as the tree increases in height. I send you herewith two photographs of the same tree, taken from approximately the same view point, but with an interval of 12 years.

The tree in question is a cabbage gum (*Angophora lanceolata*) growing on the line of a fence. The fence rails were housed into the trunk some years before 1913, and the bark grew round the ends of the rails for some little distance on each side. A comparison of the two photographs will show that the ends of the rails are practically in the same horizontal position now as they were in the year 1913, and I should regard this as good evidence that the lateral limbs of a tree are not carried up with the growth of the tree."

(The point raised by Mr. Dornbusch has often been discussed, and there are several references in Australian literature to the effect that the bole of a tree below the

main branches increases in length. The matter has been dealt with in a paper by Mr. R. H. Cambage (Journal and Proceedings of the Royal Society of N.S.W. Vol. 52. p. 377) who carried out experiments with the different trees by means of tacks and nails driven into the trunk at intervals of about 1 foot, and his experiments went to prove that once a young tree throws out definite branches the portion of the stem below such branches will increase in diameter but not appreciably in length, and acts as a strong base upon which the superstructure may be erected.—Ed.)



A BEAUTIFUL BUPRESTID (Coleoptera.)

By the late Mrs. F. H. Hobler.

Pseudotaenia ajax is a beautiful insect belonging to the family of Buprestidae, and in Master's catalogue, classed with the Chalcophora. It is found in the Northern and Western parts of Queensland, and mostly, if not always, inhabits the brigalow scrub.

During part of the day it feeds on the leaves of the Blackbutt (*Eucalyptus* sp.) frequently right at the top of these big trees.

During the hottest parts of the days—November and December—they seek out the brigalow (*Acacia harpophylla* trees, coming down quite low on the trunks where they may be found by collectors. However, it requires a quick eye and hand to capture them even with the aid of butterfly net. Also every care has to be taken not to rub off the beautiful yellow pollen with which the insect is striped. The female lays her eggs on the bark of the brigalows; preferably on an injured or half dead tree. The young grubs or larvae then work their way into the trunk, really feeding as they go, as they exist on the wood, or rather the juices extracted from it.

When fully matured the larva widens the hole leading out to the bark, then retires as far back as possible, where it in due course emerges into the perfect beetle. The *Ajax* now works his way out of the hole until stopped by the hard bark of the brigalow, through which he bites his way. Surely Mother Nature has wisely provided this delay to allow the insect time to dry and



Blue Gum (*Eucalyptus tereticornis*), Goodna, near Brisbane

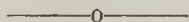
—Photo. C.T.W.

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harden. The outer world of sunshine being reached, the Ajax, with a buzz, is off to seek his dinner.

I may here mention that the blackbutt trees are often to be found in the scrubs where the brigalow grows. In searching for Ajax, the collector strips the bark from the latter trees, and if fortunate, finds the large hole of the larva, which may contain a fully matured insect.

Once, when staying with friends a few miles out of Warra, a little township on the Roma line, I found on a small plain numbers of these much valued Buprestidae, dead and discoloured by the sun. Numbers had also been washed into the catches of the water tanks.



THE EUCALYPTS OR GUM TREES OF THE BRISBANE DISTRICT.

By C. T. White, F.L.S., Government Botanist.

IV.

(Continued from the "Queensland Naturalist"
Vol. V., p. 16.)

5 *Eucalyptus tereticornis* (Blue Gum.)

Description.—A tree attaining a large size, the trunk rather glossy marked with large red, blue or greyish patches. Coppice ("sucker" or "stump") shoots quadrangular, with leaves very broadly ovate, 3 to 4 inches long, and mostly over 2 inches wide. As the coppice shoot or young tree grows, the leaves assume more of the adult form, the branchlets become terete, and the leaves in this stage attain a large size, up to 10 inches long and 3 inches wide. Ordinary (adult) leaves, narrow-lanceolate, straight or more or less falcate; the upper part tapering to a long acute apex. Petiole $\frac{1}{2}$ to $\frac{3}{4}$ inch long; blade 5 to 8 inches long, $\frac{1}{2}$ to 1 inch wide; the midrib distinct, main lateral nerves oblique, fairly wide apart (the distance varying from 2 lines to $\frac{1}{2}$ inch) intermediate veins and reticulations distinct in the dried leaf; intramarginal vein distinct, $\frac{1}{2}$ to 1 line removed from the edge; flowers in 2 to 7 flowered umbels, the umbels borne in the leaf axils; the peduncle about $\frac{1}{2}$ inch long; calyx tube turbinate, tapering at the base into a slender pedi-

cel, measuring with the pedicel about $\frac{1}{4}$ inch long; operculum variable usually narrowly conical averaging about $\frac{1}{2}$ inch long with the apex pointed, sometimes much shorter with the apex rather blunt. Stamens about $\frac{1}{2}$ inch long, the filaments sometimes a deep pink, anthers small with parallel cells, each cell opening by a longitudinal slit; seed-capsules variable 3 to 4 celled, subglobose 3 to 5 lines diam; the rim about 1 line broad, sloping, valves protruding.

Distribution.—A native of Eastern Australia, from Gippsland, in Victoria, to North Queensland. It extends to Papua. It favours alluvial flats and creek banks, but is not confined to such localities, being common on the tops of hills and mountains, e.g., Taylor's Range, near Brisbane.

Botanical Name.—*Encalyptus* (see under No. 1); *tereticornis* from the two Latin word *teres*, rounded and *cornu*, a horn, in allusion to the shape of the operculum.

Common Names.—Known almost universally in Queensland as "Blue Gum." In New South Wales it most commonly goes under the name of "Forest Red Gum."

Timber.—One of the best general hardwoods of the genus; generally used for all building purposes, especially for parts exposed to the weather.

Botanical Reference.—*E. tereticornis* Smith, in Shaw and Smith's "Zoology and Botany of New Holland." Vol. 1, p. 41 (1793.)

6. *Eucalyptus propinqua* (Grey Gum.)

Description.—A large tree, the trunk usually dull, marked with large leaden-grey patches or for the most part leaden-grey in colour. Coppice ("sucker") leaves 2 to 5 inches long, 1 to 2 inches wide. Ordinary (adult) leaves straight or more or less falcate, the upper part tapering to a long acute apex, petiole $\frac{1}{2}$ to 1 inch long, blade averaging about 5 inches in length, very variable in width ($\frac{3}{4}$ to nearly 2 inches wide), midrib distinct; main lateral nerves oblique, indistinct mostly about 2 lines apart, intramarginal vein indistinct and very close to the edge, sometimes not distinctly visible even in the dried specimens. Flowers in 2 to 7 flowered umbels in the axils of the leaves. Peduncle flattened $\frac{1}{4}$ to $\frac{1}{2}$ inch long; calyx-tube narrow turbinate, tapering at the base into the short flattened pedicel, measuring with the



Grey Gum (*Eucalyptus propinqua*), Taylor's Range, Brisbane.

—Photo. C.T.W.

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pedicel 3 to 4 lines, operculum conical shorter than the tube. Stamens about $\frac{1}{4}$ inch long; the anthers small with parallel cells, each cell opening by a longitudinal slit. Seed capsules broadly turbinate or almost hemispherical, variable in size, but mostly 2 to 3 lines in diameter, 3 to 4 celled, the rim flat or slightly raised, valves exerted.

Distribution.—A native of Eastern Australia, ranging from the Hawkesbury River, in New South Wales, to the Blackdown Tableland, Central Queensland. It is a very common tree in the neighbourhood of Brisbane; it grows on a variety of soils and favours alluvial flats and rainforest ('scrub') edges, in both of which situations it attains a very large size, and has a fine clean symmetrical bole. In drier localities, such as Taylor's Range, etc., the trees are smaller and more irregular in growth.

Botanical Name.—*Eucalyptus* (see under No. 1); *propinqua*, Latin meaning near, referring to its close affinity to *E. punctata*, an earlier described species.

Common Names.—Known universally in Queensland as "Grey Gum."

Timber.—A useful hardwood of excellent quality. The trees, however, are generally very faulty.

Botanical Reference.—*E. propinqua* Deane and Maiden in Proceedings Linnean Society of New South Wales. Vol. 20, p. 541 (1895) Plate 43.

Note.—In his "Critical Revision of the Genus *Eucalyptus*," Vol. 6, p. 54. Mr. J. H. Maiden makes a new variety (var. *major*) and amongst the localities gives Norman Creek, near Brisbane. The species is very variable in size of leaves, flowers and buds, and I cannot follow Mr. Maiden in raising the coarser forms to varietal rank.

CORRECTION.

Mr. R. Illidge writes that the word *Phoracantha*, which appeared in his "Notes Accompanying Exhibits" in the April issue of the "Queensland Naturalist," and which was repeated in the July issue, should read "*Phoracantha*."

INSECTS OF THE RIVER MANGROVE

(*Aegiceras majus*.)

(Notes taken on Excursion of the Queensland Naturalists' Club to Luggage Point, Brisbane River, 3rd June, 1925.)

By R. Illidge.

The river mangrove, though much neglected by entomologists, is the host plant of several interesting insects. Among these is a species of xyloryct, the perfect insect of which (a moth) has, if known, not yet been identified in connection with this tree. At present I can only show the larval forms with the covering web, as is usual in the majority of these species. The larvae when taken in the sticks, were eating the leaves of the plant, which they had cut off and carried to their holes to devour at their leisure, free of trouble from enemies.

Another species in larval and pupal stadia is a member of the cossidae, which was named *Culama expressa* some years ago by the late Dr. T. P. Lucas, from specimens obtained by me some three miles down the river from Bulimba. It is extremely destructive to the plant, as was seen by the state of a stem submitted.

In Coleoptera is a fine Longicorn of the sub-family Cerambycides named *Tryphoecharia Mitchelli*, which lives in the larval state in the stems of this tree. This beetle I obtained in numbers many years ago when living on the North Quay. They were not uncommon on the mangroves which lined the river banks at Milton.

Amongst other insects is a butterfly rather notable as having recently been discovered as a local species by Mr. D. Curtis: his find has been verified by Mr. Franzen, from Amity Point, during the late excursion thereto. The butterfly is well known from the north, and appears to be plentiful in Yeppoon; it may now be looked for all along the Queensland coast where this tree grows. It is a beautiful species of the *Lycænidæ*, known as *Miletus apelles*, of a fine coppery red on upper surface, the under being richly varied with shining green and red markings. Mr. Curtis found the larvae associated with ants, as is so common in this family.

The sweet smelling flowers also are very attractive to great numbers of butterflies and moths, likewise other insects galore. Amongst butterflies, *Euploea corinna*, *Hypolimnas nerina*, *Nymphalis sempronius*, *Delias*

nigrina, *Delias nysa* and *Catopsilia pomona* were noted by me, but Mr. Franzen, who travelled further afield, saw several *Lycaenid* species. *Sempronius* is an unusually late species.

N.B.—*Miletus apelles*.—This butterfly appears to me to be a migrant from its northern habitat. The mangrove (*Aegiceras majus*) was for two or three years under almost weekly observation, and I failed to see anything of it. All my specimens were from Mackay northward to Cooktown. Of another species *Miletus epieurus*, I obtained a long series and distributed many specimens amongst friends. *Miletus ignita* of Leach has also been captured very frequently at the flowers. The whole genus is notable for the beauty of the species, all of which glow with spots and bands of golden green and bright red on the under surface. My late collection contained all the species known, except *M. polycletus rex*, and of them the most resplendent was our Brisbane form of *Miletus delicia*, Hewitson.

—o—

THE WHITE-WINGED BLACK TERN

(*Chlidonias leucoptera*),

(With Notes on Terns observed during the Easter Excursion of the Naturalists' Club to Stradbroke Island.)

By Mrs. W. M. Mayo.

When crossing Moreton Bay, between Myora and King Island, I observed a pair of birds that looked unusual. On close examination I found that the birds were a pair of the rare (for the Southern hemisphere) black tern. The seas in that part of the bay were heavy, and the birds swooped over the seas picking up food in the same way as the Gull-bill Tern. I did not see them dive at all. About eight years ago I observed several of these birds in Moreton Bay, but have not seen them since, until this year. The velvety black bodies of the birds had a few oval grey or greyish white patches on them. The plumage seemed in process of changing.

The terns observed in Moreton Bay during the Easter Excursion of the Club included:—Crested Tern (*Sterna bergii*); Caspian Tern (*Hydroprogne caspia*) very plentiful; Gull-bill Tern (*Gelochelidon nilotica*) rather few; White shafted Ternlet (*Sterna sinensis*); Lesser crested Tern (*Sterna media*) and the Black Tern.

**FRUIT OF ACRONYCHIA IMPERFORATA—
A "WILD ORANGE."**

Mr. J. H. Schmeider, of "Seaview," Watlagan, N.C. Line, recently wrote me as follows:—

"I enclose herewith a specimen of a local scrub tree, which I have heard some people call "Wild Orange;" I would be glad of the identification. The fruit in colour is a sort of yellowish-white when ripe, it has a single stone, hard, and with an uneven surface, round in shape, the kernel is covered with a fairly thick tough flesh, which comes away from the stone. The flesh is astringent. The average size would be about three-eighths of an inch in diameter. It has four divisional marks, but I do not think the fruit would burst open. A school boy here became violently ill a couple of evenings ago, after eating some of these "Wild Oranges."

(The fruits forwarded by Mr. Schmeider were those of *Acronychia imperforata*, a very common tree in South-eastern Queensland. The tree is particularly abundant in light rain forests or "scrubs" or scrubby patches bordering on the coast such as is found on foreshores often behind the mangrove formation.—C. T. White.)

OBITUARY.

It was with much sorrow that members of the Queensland Naturalists' Club learnt of the death last month of Mrs. M. T. Hobler. The late Mrs. Hobler took an active part in the work of the Club, and for a short time served on the council. The deceased lady was of a very genial disposition, and much beloved by all who knew her. She was a daughter of the late Mr. Geo. Barnard, of Coomooboolaroo, Duaringa, (Central Queensland, a well known student of nature, whose home in the early days of Queensland was the resort of naturalists from all parts of Australia as well as other countries. The entire family was imbued with the father's love of natural history, and his sons are amongst our foremost students in entomology and ornithology.

Mrs. Hobler was a contributor to various papers on nature study, and besides the contribution in the present issue, the "Queensland Naturalist" is indebted to her for the following:—Frog-eating Carabs, April, 1921; Why the Birds Should be Protected, March, 1923; Nature Notes, September, 1923; Coleoptera, found on Moreton Island, September, 1924.

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Queensland Naturalist

Journal of the
Queensland Naturalists' Club
AND
Nature-Lovers' League.

—
"The Poetry of Earth is never dead."—KEATS.
—

The Author of each Article is responsible for the Statements
expressed therein.



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The Queensland Naturalists' Club

— AND —

Nature-Lovers' League.

Official Journal—The Queensland Naturalist.



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MEETINGS:

Evening Meetings are held at the Brisbane Women's Club Rooms
Albert House, C/r Albert and Ann Streets, Brisbane,
on the third Monday of every month.

Excursions are held once or twice a month from March to December.

The Queensland Naturalist.

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AND NATURE-LOVERS' LEAGUE.

VOL. V.

JANUARY, 1926

No. 4.

PROCEEDINGS.

October—November, 1925.

EVENING MEETING, 19th OCTOBER.—The President (Mr. W. B. Alexander) occupied the chair, Mr. C. T. White (Government Botanist) gave a brief report on an excursion to Sunnybank. The principal business of the evening was the screening of a number of lantern slides of bird life from photographs taken on Alice Downs station, Central Queensland, by Mr. D. W. Gaukrodger. Mr. Gaukrodger remarked that the area was one with a very rich avifauna. He observed as many as 140 species of birds during a year of residence there. Among the slides were unique photographs of brolgas, purple backed wren, Australian bustard, reed warblers, peaceful dove, black-backed wren, white-fronted heron, and a very fine series of the spotted bower bird, nests, young, and playing bowers. Mr. W. B. Alexander exhibited a number of objects from the bowers of the satin bower bird, and spotted bower bird respectively. A marked feature was that the objects from the playing grounds of the former were blue, and those from the playing ground of the latter green and white. Mr. J. E. Young described the playing ground, and bower of a northern species of bower bird, which he had seen on Cape York Peninsula. In this case the bird decorated its bower with green berries, and the green capsules of the bloodwood (*eucalyptus corymbosa*). When the capsules became dry and brown they were discarded, and fresh ones gathered.

A number of preserved specimens of wild flowers from Western Australia were forwarded for exhibition by Miss Allum, of Perth. The specimens were commented upon by Mr. D. A. Herbert. Mr. H. A. Longman exhibited on behalf of Mrs. W. M. Mayo, one of the plates of the plastron of a turtle. The specimen was picked up in Moreton Bay, and probably came from the green turtle. Mr. J. E. Young exhibited a specimen of a black snake

from Stradbroke Island, and stated that this species on Stradbroke Island attained a comparatively large size. He also exhibited two smaller snakes from Kingaroy, determined by Mr. Longman as the red naped snake (*Pseudalaps diadema*) and the pale headed snake (*Hoplocephalus bitorquatus*) respectively.

Miss Baird exhibited from Tambourine Mountain a lizard (*Lygosoma reticulatum*) characterised by the possession of extremely rudimentary limbs. Mr. C. T. White exhibited a piece of the fungus *Xylostroma giganteum*, taken from the interior of a bloodwood tree felled at Kingaroy by Mr. W. L. Osborne. The fungus, which is of the appearance and texture of leather, is sometimes found filling the gum-veins of eucalyptus timbers of the bloodwood type. It has been suggested that it is the root-stage of the large polypore (*Polyporus eucalyptorum*).

EVENING MEETING, 16th NOVEMBER.—The President (Mr. W. B. Alexander) occupied the chair. Dr. E. O. Marks gave a brief account of the visit of members of the club to Petrie's Quarry on Saturday afternoon, 4th November. The locality is rich in fossil mesozoic plants, and some fine impressions of *Thinnfeldia* (a fossil fern) and *Baiera* (a fossil gymnosperm) were obtained. Mr. J. C. Smith exhibited two shells from the Great Barrier Reef, one a fine specimen of *Haliotis*, with a beautiful green shining colouring on the under side of the valve. Mr. D. A. Herbert exhibited a number of photographs of Western Australian trees and plants. Mr. Mann exhibited a case of Tabanid flies of the genera *Tabanus*, *Osea* and *Silvius*. Mr. C. T. White exhibited specimens of two trees from Goodna, (a) *Engenia Francisii*, a giant water gum only described a few years ago from Kin Kin in the Wide Bay district, but now found to extend from that district to the Northern Rivers of New South Wales, and (b) *Hormogyne continifolia*, showing evidence of having been heavily eaten down by stock. Mr. W. B. Alexander exhibited photographs of Sooty Terns, at Oyster Cay, on the Barrier Reef. Mr. Alexander suggested that under proper methods the collecting of birds' eggs on the reef might become a profitable industry without serious detriment in any way to the birds themselves. Mrs. W. M. Mayo exhibited leaves of various species of *Rubus* from the Lamington National Park.



Narrow-leaved Grey Gum (*Eucalyptus Secana*.)
Sunnybank, near Brisbane.

—Photo. C.T.W.

THE EUCALYPTS OR GUM TREES OF THE BRISBANE DISTRICT.

By C. T. White, F.L.S., Government Botanist.

V.

(Continued from the "Queensland Naturalist,"
Vol. V., Page 45.)

7. *Eucalyptus Seeana* (Narrow-leaved Grey Gum.)

Description.—A large tree, the trunk usually dull, and marked with large leaden-grey patches as in *E. propinqua*. Coppice ("sucker") leaves variable, mostly less than an inch in width, and usually very long and narrow (some specimens at hand only $\frac{1}{4}$ -inch wide, are 6 inches long, and others slightly wider, are only about 2 inches long). Ordinary (secondary or adult) leaves lanceolate, usually somewhat falcate, the upper part tapering to a long acute apex, petiole $\frac{1}{2}$ to $\frac{3}{4}$ inch long; blade usually long and narrow, $4\frac{1}{2}$ to 8 inches long, $\frac{1}{2}$ to $\frac{3}{4}$ inch wide; midrib distinct, main lateral nerves oblique, distinct, as also are the finer nerves between them, mostly about 2 lines apart; intramarginal vein distinct and very close to the margin. Flowers in simple 2 to 7 flowered umbels in the axils of the leaves, peduncle $\frac{1}{4}$ to $\frac{1}{2}$ inch long. Calyx-tube turbinate, tapering at the base into a rather distinct pedicel, measuring with pedicel 2 to 4 lines in length. Operculum narrow conical $\frac{1}{3}$ rd to $\frac{1}{2}$ inch long, usually tapering to an acute apex. Seed-capsules broadly turbinate or almost hemispherical, about $\frac{1}{4}$ inch diam; the rim forming a prominent band round the top of the capsule; 3 to 4 celled, valves exserted.

Distribution.—North-eastern New South Wales and South-eastern Queensland. It is very abundant in the neighbourhood of Brisbane, but its exact geographical range has yet to be ascertained. In the past it has been confused with *E. tereticornis*, on the one hand, and *E. propinqua* on the other.

Botanical Name.—*Eucalyptus* (see under No. 1); *Seeana* in honour of Sir John See, one time Premier of New South Wales.

Common Names.—Narrow-leaved Grey Gum, has also been referred to as the Narrow-leaved Blue Gum; the bark characters are more or less those of the Grey Gum (*E. propinqua*), but sometimes the upper part of the trunk is inclined to be glossy, the leaf and bud characters are those of the Blue Gum (*E. tereticornis*), the fruit partakes of some of the characters of both, possibly it is a hybrid between the two species.

Timber.—Little is known definitely about the timber, and reports are conflicting.

Botanical Reference.—*Eucalyptus* Seeana, J. H. Maiden in Proceedings Linnian Society, N.S. Wales, Vol. 29, p. 469 (1904.)

No. 8.—*Eucalyptus hemiphloia* (Gum-topped Box.)

Description.—A large tree with a typical dark grey "box" bark on trunk and basal part of main branches, branches and branchlets smooth, the shed bark often hanging down in long ribbons from the forks. Coppice ("sucker or stump") shoots quadrangular in the very young stage but soon rounded, the leaves on coppice shoots often attaining a large size, up to 9 inches long and $5\frac{1}{2}$ inches wide, broadly ovate or irregularly lanceolate, thick and coriaceous in texture, commonly but not always oblique at the base, main lateral nerves and intramarginal vein distinct, the latter usually some distance from the edge (in the larger leaves it may be removed as far as $\frac{1}{4}$ -inch) except at the base of the leaf, where it runs almost on the edge for a short distance. Ordinary (secondary or adult leaves) usually broadly lanceolate or very slightly falcate, blunt at the apex, tapering at the base to a petiole or leaf stalk of $\frac{3}{4}$ -inch; lamina or blade somewhat variable in size, mostly 4 to 5 inches long and 1 to $1\frac{1}{2}$ inches wide, main lateral nerves oblique, sometimes conspicuous, at other times not very distinct, but always clearly discernible, a variable distance ($\frac{1}{4}$ to $\frac{1}{2}$ inch) apart, intramarginal vein $\frac{1}{2}$ to $1\frac{1}{2}$ lines from the margin, often closer in the lower than in the upper half of the leaf, intermediate veins and reticulations not distinct even in the dried leaf. Flowers in umbels, the umbels forming terminal panicles but the fruiting ones usually lateral below the leaves; umbels 3 to 10 flowered, the peduncle more or less flattened, one-third to half inch long, including the thick pedicel; operculum conical pointed, $2\frac{1}{2}$ to 3 lines long. Stamens about $\frac{1}{4}$ inch long,



Gum-topped Box (*Eucalyptus hemiphloia*.)
Darra, near Brisbane.

—Photo. C.T.W.

anthers very small, globular, each cell opening by a lateral, comparatively large pore. Seed capsules obovoid or rarely broadly turbinate, about $\frac{1}{4}$ inch long and 2 lines diam, on pedicels, about 2 lines or almost sessile, deeply sunk 3 to 5 celled, rim narrow, valves short, not protruding.

Distribution.—Has a wide distribution ranging through Queensland and New South Wales, and varieties occur in Victoria and South Australia. In Queensland it ranges from the Southern border to Rockhampton, and extends from the coast to about 150 miles inland.

Botanical Name.—*Eucalyptus* (see under No. 1); hemiphloia from the Greek hemi, half and phloios bark.

Common Name.—Known universally in Queensland as "Gum-topped Box."

Timber.—A useful hardwood, but not cut to any extent; it is subject to grub holes.

Botanical Reference.—*E. hemiphloia* F. v. Mueller. in *Fragmenta Phytographiae Australiae*. Vol. 2. p. 6 (1860). J. H. Maiden in his "Critical Revision of the Genus *Eucalyptus*," Vol. 2. p. 14 has some interesting notes on the naming of this species.

—o—

A NATURALIST IN THE PHILIPPINES.

(By D. A. Herbert, M.Sc., Department of Biology,
University of Queensland.)

(Resumé of Lecture delivered before the Queensland
Naturalists' Club, 18th May, 1925.)

In 1521 Ferdinand Magellan landed in the Philippines after having circumnavigated the globe for the first time. He converted the natives of Cebu to Christianity and laid the foundations of Spanish dominion in the Philippines. Shortly after his arrival he was killed in a skirmish, but his successors, using Cebu as a base, extended Spanish influence to Maynila, a Mohammedan village on the island of Luzon. The christianizing of the Indios was rapidly effected in the northern parts of the Archipelago, where Mohammedanism did not have a

strong hold, and religion was a tie which bound the colony strongly to Spain. Spanish culture spread through the islands, Spanish names were given the inhabitants, and the old feud between Spaniards and Moors found a home in a new land where the flame of hatred between Christian Filipinos and the Mohammedans of the Southern Islands was kept alight by constant raids and petty warfare. This antipathy persists to the present day. The Spaniards never had a very strong hold over the Moros of the South, and even at the time of the American Occupation of 1898, these people were, for the greater part, only nominally under Spanish rule.

The most primitive of the races occupying the islands are the Negritos, a race of pigmies with frizzy hair, and a decided Malayan cast of features. These little people have been driven back into the mountains, where they wander naked, gleaning a miserable living in the forests. Their agriculture is very primitive, and where it exists at all, consists of the planting of rice in holes dug in forest clearings. The first Malays who colonised the islands were primitive people driven into the mountainous districts by subsequent waves of immigration of more highly civilised Malayan races from the south. These successive waves, together with chance admixtures from other sources, have resulted in a collection of peoples, more or less related, but differing considerably from one another ethnologically, culturally, and linguistically. The principal nations are the Negritos, the primitive Igorots of the northern mountains, the Ilocanos, a hardy pioneering and colonising people, the Tagalogs, who inhabit the south of Luzon and adjacent islands, and who are the most energetic and progressive of the Filipinos, the Visayans from the middle of the Archipelago, and the fierce Mohammedan Moros of the south, who are still nominally governed by the Sultan of Sulu. There are numerous sub-divisions of each of these nations, and smaller groups quite distinct from them.

The Chinese had traded along the Philippine coasts long before the coming of the Spaniards, and many had settled and married into the country. China had at one time an extended empire embracing part of the northern island, and ever since steady immigration has been going on, and many of the highest Filipino families have been founded by Chinese. The Chinese at present dominate Philippine trade, and in most of the villages the largest

stores and mortgages on the native property are held by Chinamen, mainly from Canton and Amoy. Periodical massacres testify to their popularity.

In the eighteenth century Britain captured Manila and held the islands for some years. When they were handed back to Spain, many of the British Indian troops were demobilised and settled on the Island of Luzon. Their descendants form a large and distinct unit of the population.

The Spanish occupation has had a profound effect on the Filipino people. One of the chief policies of Spanish colonial administration is the vesting of local authority in a "mestizo" or half-caste class. Constant inter-marriage during the last three hundred years has produced an aristocracy with a large admixture of Spanish blood and with strong Spanish sympathies.

The houses of the wealthier classes are built in the Spanish style, and the old walled city of Manila is a transplanted piece of old Spain with its immense stone churches, narrow streets and stone houses. The native houses are of a similar type to those of other Malayan countries. They are usually built with a bamboo framework; the roof is a thatch of the leaves of the nipa palm (*Nipa fruticans*): the walls may be composed of either nipa leaves or of woven bamboo, and the floor is of strips of split bamboo laid side by side. The house so constructed is very cool and airy, and very pretentious buildings are often built in the same style as that of the native huts. With the increase in the price of labour, however, it has become cheaper to use wood and galvanised iron, but the resultant structure, though more durable, is not nearly so comfortable. It has the important advantage of not harbouring so many cockroaches as the original type does.

The whole of the Archipelago lies well within the tropics, and, except in the colder mountainous regions, the agricultural crops are tropical. Rice is the staple food, and great stretches of the lowlands are laid out in paddies. Rice is raised in seed-beds and the seedlings transplanted by hand into the fields. A distinct race, the upland rice, is grown on hillsides in forest clearings. Unlike lowland rice, this does not need submersion in water for its growth, and is very useful to the poorer people who own no rice land. The trees are

cleared from a patch of forest and the rice planted in holes dug with a long piece of bamboo. It produces one crop and then seeds, and second-growth trees take possession of the patch. It is cheaper to abandon the clearing and cut down a fresh patch of forest than to clear the weeds and undergrowth, and consequently large areas of virgin forest are constantly being destroyed by this wasteful *caingin* system. In time the forest re-invades the ground, but very often the trees are different from those originally peopling it. In the northern mountains, where rice cultivation has been practiced for hundreds of years, the Igorots have evolved a wonderful irrigation scheme. The mountain sides are terraced almost to their summits, and the streams diverted so that they flow on to the topmost terrace and thence to those below. The sight of hundreds of terraces rising one above the other to the summits of mountains thousands of feet in height, each capped by a green cap of rice, is tremendously impressive, and the work is considered one of the wonders of the world. One variety of rice grown on the terraces has a red grain. It has a fine flavour, but it is hard to separate from the husk, and the pieces of adhering chaff spoil its appearance when it is cooked.

The tobacco plantations of the Philippines were originally under Spanish control. The natives were allowed cigars at the rate of one to each family, the balance of the crop to be turned over to the company. This regulation was easily observed. A tremendous cigar—large enough to last a week—was made and hung from the roof by means of a cord, and the whole family took it in turns to have a smoke. Though the restriction is no longer in force, the custom of making a family cigar is still common in the North of Luzon. Tobacco raised in the Philippines is of excellent quality, but the leaf is subject to a fungal disease which spoils its appearance, so that wrappers for Manila cigars have to be imported from Sumatra.

Manila Hemp (*Musa textilis*) is a plant very largely cultivated throughout the islands; it does not thrive elsewhere, so that hemp raising is practically a Philippine monopoly. In some districts bunchy top exists, but the worst enemies are the borer (*Cosmopolites sordidus*) and heart rot. The latter disease is not fully understood, but seems to be a mixed infection usually follow-

ing on the attacks of the borer. Maguey (*Agave cantala*) and roselle (*Hibiscus sabdariffa*) are also fibre plants raised extensively in the islands, but do not approach Manila hemp in importance. The juice of maguey is very irritating, and causes inflammation of the hands of the strippers.

Most of the common tropical crops are raised successfully. Amongst them are pineapples, taro, yams, mangoes, coconuts, sugarcane, and papaws. Pineapple pulp is frequently allowed to become infected with a mould, and the resultant fermented sweet (*nada de pina*) is very highly esteemed. The sugary saps of the buri palm (*Corypha elata*) and of the coconut (*Cocos nucifera*) is collected by cutting off the inflorescence and attaching a bamboo tube to the cut end. The sugary sap collects in the tube and is fermented to produce a wine known as tuba. Rice water is also fermented to produce sake, but the quality of the product varies greatly with the locality. Coconuts are floated down the river in circular rafts, constructed by tying the coconuts in twos with partially detached pieces of their husks, and intertwining them with one another.

Most of the industries are primary and the main exports are copra and hemp. A considerable trade is carried on with Australia, the bulk of the meat coming from Wyndham and Port Darwin. At present there is a certain amount of agitation against the importation of Australian cattle because of the outbreak of pleuropneumonia in Western Australia. A number of horses are also imported from the Northern Territory and the North-west, and are used by the American army and a few livery stables; most of them, however, come from the United States. They are a striking contrast to the small native horses, which are employed in thousands throughout the islands to draw calesas, which are the local equivalent of the rickshaw.

The pig is found wild in Philippine forests, and this native form is the one which is domesticated. Almost every family possesses one cooped under the house and fed through a hole in the floor. Attempts have been made to introduce Berkshires and other foreign breeds, but they soon die owing to the attacks of the kidney worm. A cross between a native variety (the Jala-Jala) and Berkshire seems to be fairly resistant and is a great improvement on the original razor-back. Goats and

sheep are occasionally met with, but are not common. The commonest beast of burden is the buffalo. This animal is exceptionally docile under native management, but has a great antipathy for a white man. Albinoes are fairly common, but are not worth as much as the brown or black ones, because they are regarded as being liable to lightning stroke. Buffalo milk is very rich, but milk of any sort is not used much by the Filipinos, though a dairy in Manila, using Australian cows, does a fair amount of business amongst the foreign residents. These cows are killed when they go dry, and fresh ones imported. Breeding locally is unsuccessful, partly owing to their susceptibility to rinderpest. Indian humped cattle are fairly numerous and breed well, but are generally used as beasts of burden and are not milked.

In the mountains of Benguet the dog is the main source of meat. The animals are starved for a week and then given a big feed of rice. Immediately afterwards they are beaten to death and grilled over an open fire. All except the last few inches of the alimentary canal is eaten.

A peculiar article of diet is the balut, which is really a boiled, practically incubated, duck egg. The eggs are packed in heated rice husks in trays, and left to incubate. At a period ranging between 14 and 21 days they are removed, tested for vitality, and the good ones (usually about 90 per cent.) boiled. The centre of balut manufacture is the country round Manila, and one factory has a theoretical capacity of thirty thousand daily. The hatching season is mainly confined to the months of November and December.

On the average the diet of the Filipino is very poor. The main item on the daily menu is polished rice, often flavoured with bogaong (a sauce made of fermented fish.) This is supplemented with a few vegetables, and occasionally some pork or fowl. As a consequence beriberi is common, and the infantile death-rate is high. Efforts are being made to encourage the natives to drink milk and to supplement their diet with mungos and other beans which will supply the necessary vitamins. Malaria is common, but the malaria mosquito flies mainly after about nine o'clock at night, and can be avoided to a certain extent. Hookworm and other parasites take a heavy toll of the energy of the people, and a recent examination of University students showed that most

of those failing in their examinations were infected with hookworm, and often with other worms as well. The carbon tetrachloride treatment has been found very effective in such cases.

Rabies is a disease which is commonly met with, and deaths of human beings occur now and then. The Pasteur treatment is available at the Bureau of Science in Manila, but the native doctors generally treat cases by a special method of their own. The Bureau of Science at times treats forty or fifty people daily, and the treatment is highly successful. The treatment given by the native doctors, however, generally results in death. It consists in partially roasting the dog's brain, dividing it into two, applying one half to the bite and making an infusion of the other for the patient to drink.

The native doctor is usually a herbalist and treats the symptoms and not the disease itself. In a great many cases he is very successful, and a number of the remedies used have a decided pharmaceutical value.

Animals. The Philippine monkey is common in most of the forests, and is a decided nuisance in the neighbourhood of orchards. During the heat of the day he sleeps in the tree-tops, and about five o'clock in the evening starts on its excursions. A herd may consist of any number from four or five up to thirty or forty, and it can cover a tremendous area in a short time. There is a definite system in their hunt for food. In a large tree the several members choose different branches, jumping from the ends to neighbouring trees. They do not jump for any particular branch: any leafy mass seems sufficient landing. The various members are thus scattered and often out of sight of one another, but they keep in touch by grunting loudly at intervals. If the observer keeps still the monkeys do not usually notice him, and devote their attention to the selection of green shoots, flower buds and fruits. If, however, he moves, a warning cry goes up and is repeated by the other monkeys who have not noticed. The old man of the herd will often come forward jumping threateningly from branch to branch, uttering snarling barks, while the other members travel off at top speed, jumping from tree to tree, the mothers with the baby monkeys clinging to their necks.

Often in the forest a feral odour near a tree indicates the nest of the musang or civet. This animal hunts at night and is one of the worst enemies of the poultry farmer. It is about the size of a large opossum, and usually moves from tree to tree, though if necessary it will take to the ground. Round settlements one of its common methods of travelling is to run along electric light wires upside down. Snakes, particularly the python (*P. reticulatus*) are also destructive to poultry. The python is sometimes thirty feet long, and is greatly feared. More dangerous, however, is the cobra (*Naja philippinensis*). This snake is usually found in eogon country. Cogon (*Imperata exaltata*) is a tall grass attaining a height of nine feet. It grows as thickly as a wheat field, and a path must be cut through it because it is out of the question to force a way through it. Quite commonly it is the experience of natives to cut a clump with a machete and come face to face with an angry cobra. A common house snake is *Lycodon aulicus*, a harmless, slow-moving species, which has to be kicked off the path before it will move. Little burrowing snakes (*Typhlops* spp.) are commonly found in flower pots. When pulled out they curl round the finger and exert quite a strong pressure. The natives are afraid of them, because they think they cut the fingers off. In the rice paddies a poisonous species, the rice snake (*Dryophis praecularis*) is found, and has a reputation as bad as that of the cobra, though it is not very deadly. One of the worst Philippine poisonous snakes is a green viper (*Tromerisurns flavomaculatus*). This reptile has a very large head, and is about a yard in length.

Lizards are very numerous and varied. Geckos (*Gekko gekko*) are common in houses, and are active at night on the roof and walls, catching white ants, moths and other insects. Their hoarse call, consisting of a series of barks of "gecko, gekko," can be heard half a mile away. A flying lizard (*Draco spilopterus*), with a spiny crest, is occasionally found in the forests. The colour is usually green, but it can change to brown in a few minutes. A very common house lizard is *Cosymbatus platyrus*. Dozens of these little geckoes are found in almost every house in the country, and in most of those in the city. They like to come round the lights, where the trouble of catching insects is reduced to a minimum. A large lizard attaining a length of over six feet and furnished with a forked tongue, is common in

forests and grasslands. This reptile often robs fowl-yards, carrying off the poultry and biting the heads off.

Birds. One of the most interesting birds of the Philippine forests is the wild fowl (*Gallus sonnerati*.) Generally a rooster is accompanied by several hens, and the chances of getting near them are very small, as they are very strong fliers. To hear the roosters crowing in the jungle and answering one another up the mountain-side is a peculiar experience. In the silent forest the sound is identical with that heard in cities early in the morning. The natives say that the bones of the wild fowls are much darker than those of the domesticated variety. The domestic fowl is one of the characteristic features of Philippine life, almost every family owning at least one fighting cock. The cock-fights are generally held on Sundays, but are slowly yielding popularity in favour of the moving picture shows. The oriole, a large yellow bird, is a beautiful sight in the kapok trees, when these are in full bloom, as it moves from flower to flower amongst the red blossoms. The kalaw, a hornbill, is commonly met with, and is hunted, partly because it is an easy mark, and partly because it is esteemed as a delicacy. Snipe are abundant in certain districts, and are hunted at night in the ricc paddies.

Bats are common in the forests and live largely on figs and other wild fruits. During the day time many of them roost in houses, and at night return with their gatherings from the forest. These they eat in the ceiling, dropping the rubbish on to the floors and furniture below. In the northern mountains these fruit bats are very large, and form a welcome change from dog meat for the Igorots. The method of catching them is interesting. The bats usually fly no higher than they can help, and when passing over ridges between their roosts in the caves of the mountains, choose any low saddle rather than the higher parts. The Igorots cut the trees from these saddles and arrange a net across. The bats fly into the net, and a bell attached to the meshes tells the watchman that food is at hand.

The caves used by the bats are also used by the Igorots in the catching of birds. A fire is built at the mouth of a cave and the men beat the bushes in the valley below. The roosting birds are frightened out and fly upwards, are attracted to the light, and fly into the caves, where they are killed with sticks.

During the dry season locusts cause a terrific amount of damage throughout the Islands. Flights often darken the sky for hours. When they have passed by, the ground is bare and brown; shrubs and trees are stripped of their leaves and branches, and broken down where masses of the feeding insects have settled. Control is at present largely in the hands of local authorities, and their main activity is the driving of the locusts to the next community. As soon as a flight arrives, the inhabitants, men, women and children, turn out with tins and sticks and head them off with the noise. The banging certainly has the effect of keeping the locusts moving, but only postpones their settling for the time being. I tried the following experiment on a number of the insects caught during such a flight. The locust was tied to a piece of thread so that his flying would not be interfered with, and released, the other end of the thread being held. The result was that it flew round in a circle and the rate of flight could be calculated from the number of circles completed per unit time, and the diameter of the circle. The Chinese houseboy then beats a tin at a short distance away. The increase in speed of the locust's flight was indicated by the increase in diameter of the circle, and was calculated as before. A number of experiments were carried out in the same way, and the figures averaged. The normal rate of flight was 3.4 miles per hour, whereas the rate when the tin was banged was 5.2 miles per hour. The idea of tying the insect with a piece of thread is by no means original. The native children keep locusts, butterflies, and small birds tethered in the same way.

When the locusts settle on a field, an immense number of eggs are deposited, and when these hatch the ground may be almost black with hoppers. These are generally surrounded by a cordon of men who slowly drive them into a pit six or eight feet deep, by beating the ground with bushes. The living mass is then tramped down and covered with earth. Locusts are a favourite article of diet amongst the lower classes of Filipinos. They are collected in quantity either by netting during flights or by shaking from the branches on which they settle at night. They are killed by immersion in boiling water, and are then fried and salted. Wings, legs and heads are removed before eating. The flavour is somewhat like that of almonds.

A particularly noxious insect is the cautharides beetle which comes round the lamps at night. This beetle leaves a line of blisters where it has walked across the skin, and these become very inflamed and painful. They last for a week or more, and frequently leave a scar.

One of the least pleasant of night experiences is a nuptial flight of termites. These insects invade houses in millions, attracted by the light, and within a few minutes after their arrival the room is so full of them that all lights have to be put out, and the occupants go to bed, where the mosquito net offers its protection. The termites that have lost their wings crawl in between books and into every possible crevice. The small house geckoes eat till they are swollen out like barrels, and the cats also account for a great many. (The Philippine eats, by the way, usually have crumpled tails.)

The number of insects taking part in one of these nuptial flights is inconceivable. One evening coming home from Manila I met a flight at Calamba, about eight miles from Los Banos. All the way to Los Banos the train was passing through a cloud of flying termites so thick that it was impossible to do anything but keep them brushed away. Next morning I climbed Mount Maquiling, which is 3,000 feet high, the distance to its summit being five miles. All the way up the mountain side were the wings shed during the previous night's flight. The numbers of insects must have been beyond the power of imagination.

A small black termite is also a nuisance in houses. It does not destroy timber, but nests in clothing and behind furniture, eaking everything with mud. A migration of these black termites is very interesting. They move in a long column, two or three abreast, and at intervals of about a quarter of an inch on both sides sentries stand facing outwards. Interference with one of these results in a commotion spreading down the line and a stoppage of migration for a minute or two. When white and black termites meet there is a fierce battle, generally won by the blacks.

Fireflies are very numerous, and show decided preference for particular species of trees. One of their favourites is *Enterolobium saman*, the Rain Tree, round which they often congregate in such numbers that the

trees are worth going miles to see. It has been stated (and denied) that the fireflies in Java all blink at the same time on any particular tree. In the Philippines they have no co-ordination, but very often a large number happen accidentally to blink at the same time, and give the impression of a rhythmic alternation of luminescence and darkness. Luminescence is also possessed by a common centipede, which is consequently greatly feared.

OBITUARY.

We regret to record the death of Professor Sydney B. J. Skertchly, the first President of the Queensland Naturalists' Club. An account of his life and work will appear in the next issue.

Annual Meeting.

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The Annual Meeting of the Queensland Naturalists' Club will be held on Monday evening, the 22nd February (the last Monday in the month) at 8 p.m., in the rooms of the Brisbane Women's Club, second floor, Albert House, Albert Street, Brisbane.

Business: Presidential Address, Annual Report; Election of Office Bearers for 1926; Notes and Exhibits.

Members are reminded that they have the right to nominate office bearers. Nominations, with the written consent of the nominee to serve, should be in the hands of the Honorary Secretary by Monday, the 15th February.

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Journal of the
Queensland Naturalists' Club
AND
Nature-Lovers' League.

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"The Poetry of Earth is never dead."—KEATS.
—

The Author of each Article is responsible for the Statements
expressed therein.



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The Queensland Naturalists' Club

— AND —

Nature-Lovers' League.

Official Journal—The Queensland Naturalist.



OFFICE BEARERS, 1926.



President:

Dr. E. O. Marks, B.A., B.E.

Vice-Presidents:

Mr. D. A. Herbert, M.Sc., and Mr. D. W. Gaukrodger.

Hon. Secretary:

Miss E. E. Baird,
Kennedy Terrace, Red Hill.

Hon. Excursion Secretary:

Mr. J. C. Smith
(C/o Murray Fraser, Charlotte Street, Brisbane).

Hon. Treasurer: Mr. F. B. Coleman
Railway Terrace, Woolloowin, Brisbane.

Hon. Librarian: Mrs. J. C. Smith.

Hon. Secretary, Nature Lovers' League:

Mrs. W. M. Mayo,
Roseberry St., Highgate Hill, South Brisbane.

Committee:

Mr. J. E. Young. Mr. R. L. Higgins.
Mr. J. H. Simmonds, M.Sc. Mr. L. Franzen.

Hon. Lanternist: Mr. W. J. Sanderson.

Hon. Editor, Naturalist: Mr. C. T. White, F.L.S.
(Govt. Botanist, Botanic Gardens, Brisbane).



SUBSCRIPTIONS:

Ordinary Members 10s. per annum.
Country Members 5s. per annum.
Nature-Lovers' Certificate, 2d.

MEETINGS:

Evening Meetings are held at the Brisbane Women's Club Rooms
Albert House, C/r Albert and Ann Streets, Brisbane,
on the third Monday of every month.

Excursions are held once or twice a month from March to December.

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PROCEEDINGS.

ANNUAL MEETING, 22nd FEBRUARY, 1926.—The annual meeting of the Queensland Naturalists' Club was held on Monday evening, the 22nd February, at 8 p.m. In the absence of the President from the State, the chair was occupied by the Vice-president (Mr. J. C. Smith). Miss Lowe, Dr. F. W. Whitehouse, Mr. A. Moore, and Mr. W. Gaylard were elected members of the Club. The Annual Report of the Council was read and adopted. The Financial Statement, as read by the Hon. Treasurer (Mr. F. B. Coleman) showed a credit balance of £27/18/9. The Librarian (Miss E. E. Baird) reported the receipt during the year of 230 magazines and papers by way of exchange. Office-bearers for 1926 were elected as set forth on the cover page of this issue. An address by the retiring President was read by the chairman. A brief address on the life and work of the late Professor Skertchly was given by Mr. H. A. Longman, and a brief account of the history of the Naturalist Club movement in Queensland was given by Mr. C. T. White.

EVENING MEETING, 15th MARCH, 1926.—The President (Dr. E. O. Marks) occupied the chair, and there was a good attendance of members. A letter was received from the Hon. Secretary, Wild Life Preservation Society, Sydney, dealing with the evasion of the law by trappers and dealers in sending skins of the native bear to England and America under the name of wombat. After some discussion it was decided to write to the Under Secretary for Agriculture and Stock, requesting that adequate steps be taken to ensure the total protection of the native bear.

Mr. and Mrs. Ken Baird, Mrs. E. O. Marks, and Mr. R. B. Morwood, B.Sc., were elected members of the Club.

Mr. C. Dornbusch, of Warwick, sent photographs of the dried bed of the Condamine River, showing different patterns in the mud-cracks, also a photograph showing damage done to a Grey Gum by black cockatoos, the cockatoos having torn away the bark to get at the larvae of a beetle. Mr. J. E. Young showed a few lantern slides; these included the jaw-bones of a tiger shark caught at Amity Point, long streamers of "moss" hanging from trees on Mount Stanley, a pine tree with very twisted trunk growing in the State Forest at Chinchilla, and grass trees from Kanaipa (Stradbroke Island) with particularly fine flowering poles. Mr. Young also exhibited the seed pod of the "Native Wistaria" (*Millettia*). A number of aboriginal implements from the Northern Territory were exhibited by Mrs. Baird, also sleeve links made from Ribbon Stone from Mount Isa. Mr. C. W. Holland showed a skeleton of the crucifix catfish from the West Indies, and a pair of cameo-like otoliths (ear bones) from the head of a Moreton Bay Jew Fish. Mr. D. A. Herbert showed a fruit of the Australian Baobab (*Adansonia Gregorii*) from North-west Australia ornamented by aboriginal drawings of native animals, also a freak wattle blossom from Palmwoods. Mr. J. H. Simmonds Junr. showed abnormal growths in the pineapple. Mr. Laughton showed a picture in coloured sand made by a Queensland aborigine, also a stone tomahawk head and the stone used to grind it. The president exhibited specimens of a grasshopper identified by Mr. Illidge as *Aeridopeza reticulata*. A case of moths was shown by Mr. L. Franzen. Miss H. Geissmann exhibited photographs of (a) the lily lagoon at Plunkett; (b) Goose Swamp, Lake's Creek, Rockhampton; (c) *Nelumbium speciosum* from the Rockhampton Botanic Gardens; (d) Melon Shell-Cymbium flammeum—an egg capsule; (e) Ornate Spiny Lobster-*Palinurus fasciatus*; (f) a series showing the life history of the moth *Chelepteryx collesi*.

A note on "How the Turtle Makes Her Nest," by Miss Geissmann, was read by the Hon. Secretary. The notes were published in the "Queenslander" of the 16th January, 1926, and were illustrated by a fine series of photographs.

Mr. R. Illidge read a short paper on "Some Recent Avian Visitors," and showed specimens and pictures in illustration of his remarks.

QUEENSLAND NATURALISTS' CLUB.

Annual Report for the Year 1926.

Your Council has pleasure in submitting the 20th Annual Report of the Club. The year has been a successful one.

Attendance.—The attendances at General Meetings throughout the year has averaged thirty. Twenty-seven new members were enrolled and six resignations received. The membership now stands at 91 financial members, 6 honorary members, and two life members, also 24 unfinancial members.

The roll during the year was scrutinised, and those members' names were removed who had omitted to pay their subscriptions for two years and over.

General Meetings.—Exhibits have been tabled, and short descriptive papers on the exhibits read by Messrs. Illidge, Franzen, Mann, the late Mrs. Hobler, and various other members at monthly general meetings, and Messrs. Longman, D. A. Herbert, D. W. Gankrodger, Dr. Marks, Messrs. C. T. White, R. L. Higgins, and Mr. W. B. Alexander were responsible for interesting lecturettes, illustrated by lantern slides.

Obituary.—Your Council records with deep regret, the passing of three valued Club members in the past year: Mr. Sydney Curtis, whose hospitality was at all times freely extended to fellow members of the Club, and who, together with Mrs. and Mr. Densil Curtis made the Albert River Exhibit one of the chief features of our Annual Wild Flower Show. Mrs. Hobler, at one time a member of your Council, and a most enthusiastic naturalist and collector, and within the last few weeks, Prof. S. B. J. Skertchly. Twenty years ago Prof. Skertchly was the first president of your newly established Club, and from the foundation of the Club, in 1906, to the end of last year, he maintained his interest in the work of the Club. The present issue of the "Queensland Naturalist" contains an article by him—the last, alas—of those witty and interesting articles from his pen that we shall receive.

Rules.—A much needed revision of the rules governing the Club was carried out by your Council during the

year; duly passed by the general meeting, the rules were printed and have been distributed amongst members.

Tent Account.—Through the instrumentality of Mr. G. H. Barker your Council was able to acquire, just before Easter, a large marquee at a cost of £25, for the use of the field camps. After the Easter Camp it was overhauled at a further cost of £3. The Hon. Excursion Secretary reports that it is now in good order, and he hopes to refund the amount paid to the Club by a per capita charge at field camps, and an occasional hiring out to other bodies.

Field Excursions.—The field excursions of the year just passed were very well attended, and the thanks of your Council are due to Mr. and Miss Illidge, Mr. and Mrs. H. A. Longman, Mr. and Mrs. E. W. Bick, and Mr. and Mrs. J. Stitt for hospitality extended to club members and to the staff of the museum for placing their Saturday afternoon at the disposal of the Naturalists.

Easter time was spent under canvas at Amity Point, Moreton Bay, and was very much enjoyed by the campers-out. Transport arrangements passed off very well. A great deal of the success of the encampment was due to Mr. Thomas Welsby, whose knowledge of the locality and beauty spots helped the excursion secretary in arranging the daily field work.

General.—In the course of the year complaints have reached your Council regarding the violation of Sanctuary Laws. These have been passed on to the Department of Agriculture and Stock.

After the Easter camp-out the President of your Club, together with Mr. G. H. Barker, brought the open violation of Stradbroke and Bribie Sanctuaries under the notice of the Under Secretary, and asked that more rangers be appointed for those islands, and that prominent notices of the Animal and Birds Protection Acts be erected at the different boating rendezvous. The Department promised compliance with the request, and Mr. Thomas Welsby was made hon. ranger for Amity Point as a start.

During the year your Council was instrumental (through the Strathpine Shire Council) in getting the owner of a well-defined bora ring at Samford interested enough to promise to have the ring preserved by fencing round.

The Annual Wild Flower Show and Natural History Exhibition was an outstanding success, due—firstly, to the interest and help of country friends and school children—and secondly, to the very good work put in by your Council and general members.

"The Naturalist."—Your Council record with satisfaction the issue of four quarterly numbers of the journal for the year 1926: Your Editor is to be congratulated on the result of his labour, and promises a continuance of the quarterly journal, if Club members will do their share by contributing subject matter suitable for the journal.

The Nature Lovers' League.—It is a matter of regret to your Council that there is nothing to report in connection with the Junior Branch of the Club. Your Council hope to organise and put the affairs of the league on a better footing this year.

About fifty Nature Lovers' League Certificates have been distributed during the year.

W. B. ALEXANDER, President.

L. M. MAYO, Hon. Secretary.

—o—

RESUME OF LIBRARIAN'S REPORT FOR 1925.

During the year we have received, by way of exchange for the "Queensland Naturalist," 230 magazines and papers from various scientific bodies in Australia, Great Britain, America, and other parts of the world.

Most of these exchanges are purely scientific, but others, notably "The Australian Museum Magazine," from the Australian Museum, Sydney, and "Natural History," from the American Museum of Natural History, New York, contain illustrated articles of a more popular nature.

At the monthly meetings the current publications were placed on the table and enjoyed by many members. Of these, approximately 125 copies were borrowed.

During the year copies of photographs of special interest have been received from several members. These have been pasted in an album and placed in the library cupboard. More photographs will be welcomed.

E. E. BAIRD, Hon. Librarian.

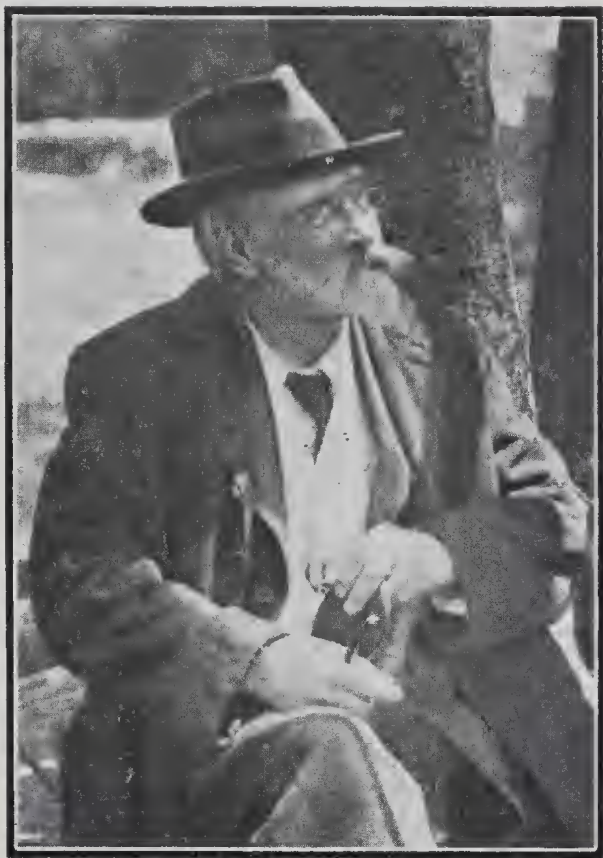
THE LATE PROFESSOR S. B. J. SKERTCHLY.

By Heber A. Longman.

At the request of the Editor I have made a few extracts from a memorial address given at the annual meeting of the Club, to mark the passing of its first President, Professor Skertchly, who died at Molendinar, on February 2nd, 1926.

My association with him goes back for about 25 years, and although there are many in Queensland who knew him for a far longer period, probably few have been more intimate. After looking through a big budget of letters and manuscript and thinking of his work as a whole, I must confess that any tribute that I can pay will be necessarily inadequate.

Sydney Barber Josiah Skertchly was a most remarkable and many-sided man, with a distinct touch of genius. He was not a specialist in the modern sense, for he took a keen interest in every branch of science. This cosmopolitanism was largely due to the influence of the great Victorian scientists in the later half of the last century. There were giants in those days, and Skertchly was very fortunate in being associated with them. He was very proud of his old friends and loved to talk of them. We of a later generation may not fully appreciate the significance of these associations, but we can partly understand his pride. For here was a man who had corresponded with Darwin, whose work and ability had been praised by Darwin, and who had assisted in the compilation of such notable books as James Geikie's "Great Ice Age" and Alfred Russel Wallace's "Island Life," and who had been thanked by these authors for his collaboration. Here was a man who had sat at the feet of Lyell, who had been taught by Huxley, who heard Bates tell tales of the Amazon before his book made that wonderland known to the public, who had been helped by the Tylors of geographical and anthropological fame, and who stood in that rich stream of intellectual life which even now raises the Victorian period above the mediocrity of history. And here was a man who was something more than an assistant to others, for, amongst other studies, he made a notable contribution to our knowledge of the antiquity of man.



Late Professor Sydney B. J. Skertchly.

—Photo by A. H. Chisholm.

NATIONAL MUSEUM

The most important work of Skertchly was done in England between the years 1870-1880. In later years he developed into an interesting and, indeed, fascinating old savant, with an inimitable literary touch, but it is not in these years that we find a record of his best work. The half-a-dozen printed addresses given before this Club and our Royal Society do not contain anything that is really comparable to the notable work of his earlier years. With his local geological work I am not competent to deal.

The first reference to Skertchly that I can find is in the "Geological Magazine," 1868, p. 392, where Alfred Tylor in a letter refers to a collection of Thames Valley drift-shells discovered by Mr. Sydney Skertchly in 1866 (60 years ago) and noted in the "Natural History Repertory" by G. J. Smith in 1867. From 1870 to 1880 he did much geological work in England and Egypt. Amongst his publications during those years were manuals of Geology and Physical Geography, "the Fensland," "Physical System of the Universe," and his "Report on Gunflints." Probably his most notable work was what Dr. W. H. L. Duckworth, in "Prehistoric Man," calls "a very memorable contribution (in 1878) from Professor Skertchly, by whom account was taken of the stratigraphical position of stone implements." This is also referred to in the British Museum Guide to the Stone Age, and under the title "Glacial Man: My Part in His Discovery" (Proceedings of the Royal Society of Queensland, xxxiii, 1921). Skertchly tells the story of his pioneer work in demonstrating the antiquity of man. This paper contains many pages of interesting autobiography, and readers will find therein the best record of his life. In addition to his work in England and Egypt, he went to America, and subsequently visited Borneo. For some years he was Professor of Botany at Hongkong.

His knowledge of literature was surprising. In the big budget of his letters to me I find references to Hebrew and Greek classics, quotations from English poets from Spenser to Swinburne, delightful witticisms, and shrewd comments. In later years he was considerably influenced by the works of Samuel Butler, and he frequently quoted from the author of "Erewhon" and "Luck or Cunning."

Skertchly was the first President and one of the founders of this Club. He also insisted that it should be a

"club" and not a society. Into his natural history he always put a touch of poetry, and as the text of his first address he quoted Keats' well-known line: "The Poetry of Earth is Never Dead." He wrote many verses, and loved to be called a poet.

Behind his witticisms, his learning, his sarcasms, his poetry, his abstruse allusions, his theorising and his many-sided life, there was one big central fact—and that was his great love of Nature and his delight in her inexhaustible treasures. He loved the birds, the flowers and the trees. He inveighed against the man-made bareness of our hillsides, and claimed that the forests had much to do with the rainfall. He wrote many interesting articles of popular natural history in the "Courier." He did excellent work for the old Gould League of Bird Lovers. He was a good, all-round Field Naturalist.

Quick-brained, silver-tongued, with a retentive memory, he had a marvellous range of knowledge and a distinctive literary style. His sparkling wit found expression even in addresses to scientific meetings. At times he was positively brilliant, and even when speaking on commonplace subjects he achieved distinction. It may be said of some people that you could not travel six storeys in a lift with them without being impressed with their personality. Skertchly was of this type; he had personality. Some people regarded him as one of the most remarkable men in Queensland in his day.

He was utterly unlike the typical try-as-dust, academic scientist. I like to think of him, interminably lighting his pipe—"smoking matches"—telling some story of the old days, his shrewd eyes lit up with humour. I like to remember his sturdy figure, carrying the old stout stick, declining to be hurried, indifferent to time, place and people, and talking, talking—on politics, on history, on literature and poetry, or on science, and especially of his old friends of the last century.

And now, being old and well stricken in years, he is gathered unto his fathers. This is not an occasion for sadness. Sydney Skertchly lived a full and long life, and achieved a great measure of success. In the quiet little cemetery at Nerang he lies, where the long grass hides many a wild flower, even as life hides many treasures in the fullness of its strenuous years. We shall long cherish his memory, for much of his life was an inspiration to all naturalists who had the privilege to come into contact with him.

A BRIEF HISTORY OF THE NATURALISTS' CLUB CLUB MOVEMENT IN QUEENSLAND.

(Read by C. T. White at the Annual Meeting of the Queensland Naturalists' Club, 22nd February, 1926.)

This being our twentieth Annual Meeting, it may not be deemed out of place to put on record a few brief notes on the history of the Naturalists' Club movement in Queensland.

The first Field Naturalists' Club in Queensland was formed at the instance of Mr. H. Tryon as a section of the Royal Society of Queensland, the first meeting being held on the 6th October, 1886. The section was a field club in more than name only, for in the first annual report, presented in July, 1887, it is recorded that during the first nine months of the section's existence only three evening meetings were held, but nineteen field excursions, and the programme as revealed by the minute book shows, even during the midsummer months of December and January, field meetings were held at least once every fortnight. After a brief period of activity, however, interest in the section seems to have waned, and only the botanists retained their interest in the section, for in the Brisbane "Courier" of the 26th May, 1887, there is an account of an excursion to Helidon, in which the recorder states: "Our branch of the Royal Society, formed with a flourish of trumpets and boasting a roll of fifty-odd members, never saw more than twenty in the field. These divided about equally into botanists and zoologists. Mr. F. M. Bailey captained the former, and Mr. Tryon acted as guide, philosopher and friend to the latter. Gradually the zoologists fell off one by one, or deserted to the botanists, until the plant-hunters secured the whole field to themselves."

The botanists remained active for a number of years, but interest in the section gradually fell off. The last excursion was one to Eumundi, in the Easter of 1894, when only three members were present—the late Mr. F. M. Bailey (leader), Mr. J. H. Simmonds, sen., and the late Mr. Geo. Watkins.

At the beginning of 1892 a society was established under the name of the "Natural History Society of

Queensland," with Mr. H. Tryon as first president, and Mr. F. Whitteron as hon. secretary and treasurer; after the first year this latter post was held by our veteran member, Mr. R. Illidge.

The Society published one volume of its records under the title of "Transactions of the Natural History Society of Queensland. Vol. i. 1892-3-4."

The present Club owes its origin to the enthusiasm of three men, the late Professor S. B. J. Skertchly, Mr. Henry Tryon, and the late Mr. Jas. Johnston.

They gathered a few kindred souls around them, and the new Club was officially inaugurated at a meeting held in the old Brisbane Technical College on the 6th April, 1906, the three fore-mentioned men being elected president, vice-president, and honorary secretary respectively.

Mr. Johnston did not retain office after the first year, and at the first annual meeting, held on the 25th January, 1907, Mr. C. W. Holland was elected honorary secretary, a post he retained until his departure on a world tour as Secretary of the Travelling Prickly Pear Commission at the end of 1912.

The Club started off with a membership roll of 30, which at the end of the first year had increased to 107—a number we have more or less hovered around ever since.

The Club commenced with the small membership fee of five shillings. In 1908 the Club started its own journal, "The Queensland Naturalist," but the subscription remained the same, the journal being charged for at the rate of five shillings per year, or 1/6 for single copies. This, however, did not prove entirely satisfactory, and it became evident that if it was desired to continue the publication of "The Queensland Naturalist" the subscription would have to be raised, and at a special meeting in April, 1909, it was decided that from 1st January, 1910, the rates of subscription should be:— Ordinary members, 10/- per annum, with the right to the Club's journal; and country members, 5/- per annum with the right of the Club's journal, and the subscription has since remained at this rate.

The Journal has had rather a chequered career, but fortunately things now seem brighter for its regular appearance every quarter.

There is no need to enter into the subsequent history of the Club, as since the appearance of the Journal the proceedings have been regularly chronicled, except for a lapse of three years from April, 1917, to July 1920, due to the unsettled state of affairs during those years, though the ordinary activities of the Club did not cease.

NOTES ON A BAMBU BORER.*

(By the late Sydney B. J. Skertchly.)

This infernal insect is not rare; it ought to be extinct, in fact. It not only destroys wood, but undermines faith, and leads to doubts of a beneficent providence.

I know more about it, much more, than I wanted to know, and it came about in this wise: There being a fine clump of bambus on the riverside of our home paddock at "Talawalla," Molendinar, on the lower Nerang River, my son-in-law, E. J. Cooper, in August, 1923, became inspired with the idea of rejuvenating the time-worn, stern-frayed backs and seats of a number of long verandah chairs with split bambu. His success was phenomenal, and was the pride of the family, and he produced a verandah bedstead all of his own architecture and fashioning.

*Prof. Skertchly forwarded specimens of the insects, and these were handed to Mr. H. Tryon for report. Mr. Tryon replied:—

The insects submitted are examples of a member of the family Bostrychidae. They are named *Dinoderus minutus* Fabr., and although apparently primarily Bamboo insects, and very destructive to it when dry and manufactured, also breed in other vegetable substances including dead sugar-cane stalks, *Smilax* wood, etc., and thus, although not reported hitherto as feeding upon the dry stems or seeds of cycads, that they should do so under constraining circumstances is not unexpected. The beetle has long since been introduced to Queensland, and is notorious here for destroying Bamboo sun-blinds, etc. Of the living insects sent, some of those in the small tubes had eaten their way outwards through the cork; those contained in the cycad-nut had perforated its paper investment, in effecting their exit; and those in the section of the Cycad-stem had done the same. Facts that go to show how easy it is to bring about a dissemination of *D. minutus*, as well as of the other bamboo-loving species of the genus.—Editor, "Queensland Naturalist."

Bambus are not indigenous to our area, but clumps have been planted, approximately a mile apart at Charlton, Birribi, Nerang, Talawalla, Lionel Brown's, Benoañ, Bundall (two clumps—one at the north, the other at the south end of the estate; these are "The Bambus" of rivermen) and Southport, and none have ever been known to suffer from borers, though the oldest (Birribi) are 70 and the youngest, Talawalla, about 20 years old. This borer consequently was either not present or not rampant. It was a nuisance at Corinda, near Brisbane, where in three years it destroyed an elaborate plant shelter I had erected at the cost of much labour and sweat shedding. I heard them gnawing as I set up the uprights, but discredited their persistence and powers, yet Uz of the Chaldees is in decorative repair compared with my collapsed Caladium house. E. J. Cooper saw never a trace of one all the time he was chairman of our little company, nor (though a keen observer) did he remember seeing the species before. Now Eddo's furniture stood stoutly four square to all the winds that blew for over a year, so we may take it this borer was not present in the house or in the neighbourhood. Of course borers are common enough, indeed too common, in our trees, especially the Casuarinas, but the local timber is not ravaged by them; floors, roofs, beams, etc., are in good condition after nearly 50 years: these are chiefly wood from outside, furniture, school desks, etc., do, however suffer, and often badly and quickly.

On the 27th October, 1923, I came down from Tambourine Mountain, bringing with me a fine female cycad cone, *Macrozamia Demisonii*, and on taking it out of the bag on reaching home, "weevils" were observed, but neither of us bothered to examine them.

Now owing to our richness in phlebotomising arthropods like *Culex damnabilis* and *Pulex infernalis*. I had at vast expense, purchased a pound of Pyrethrum powder, reputed to be lethal to said invertebrates, but proving about as poisonous as Bengers Food. Still I occasionally burnt some, as it gave a cathedral-like incense flavour to my room. It was in a paper bag on the bedside table, near the bambu-backed chair. About six weeks ago I noticed a layer of yellow impalpable dust under the chair and mistook it for a Pyrethrum catastrophe: it was beetle dust. It is accumulating still for scientific research, but ah, not for long: doom is imminent! But I sought in

vain for the depredator. Then, about the beginning of this month (February) I happened on one, or rather it happened on me—(night, bed, reading, bad habit, chronic) on the back of my hand and he is shrined in one of the tubes I send. Like the monks who 'heedless of grammar, they all called that's him'! I knew I had got him at last. He was rare, and I hunted him diligently (still do, with other intent) but in a fortnight did not get more than a dozen, and I wanted a respectable crowd to send to Brisbane for baptism. Then on February 7th came the rain (0.85 here) the real overture of the present Gehenna season and they came out at sunset in battalions, and were speedily on those terms of tender intimacy, which are said to token identity of species. They are now slackening off (27th February, gone).

They don't attack the hard outside of the bambu, but simply bore through it and feed upon the soft inner tissue. At first I didn't mind them more than tame rabbits on lettuce diet, but I soon found them devouring my books; they were fellow bibliophiles, and short-commons, even famine, loomed ahead of me. You see I take my grub periodically, sporadically, after the manner of the new-banded quantum, whereas they as grubs grub day and night without ceasing; so I have been fain to restrain their ardour with turps, which is to them as holy-water to their blood brother Auld Clotie. Here again, they eschew the bark and chew the leaves, preferring the delectable space between binding and end-paper where paste lies as rich provender. This leads me to suspect them as of Scottish origin, for is it not they whom Burns admonishes:

"Through and through the inspired leaves,
Ye maggots, make your windings;
But oh! respect his lordship's taste,
And spare his golden bindings."

Now, after the Flower Exhibition of the Field Naturalists last autumn Miss Hilda Geissmann kindly sent me the fine section of a eycead trunk she had shown there. There were certainly no borers of any sort in it then, and it was laid on a table on a verandah on the opposite side of the house from where my cone lay. From the cone I had selected a few of the, scarlet-rive seeds for examination, and they lay within a couple of feet of the trunk section. Months passed and nothing happened. But after I noticed the dust under the chair in my room

I found the fruits badly attacked by the borer, and a week or two afterwards they had got into the trunk, where I promptly settled them. By this time the cone had fallen to pieces, as many cones do (Bunya, casuarina, etc.), but not all (e.g., Sequoia: I have some I got in California 30 years ago, still complete). Now these borers could only have come from the cycad seeds or from the before-mentioned bedstead, which was the only bambu article of Eddo's fabrication that entered the house save my bedroom chair, and the bedstead was then quite free from borers, and only showed evidence of their presence about the same time as I found the pyrethrum dust (I suppose someone will call this a case of mimicry!) I shall return to this presently.

The amount of work these borers accomplish is best shown in the following table:—

**Dust Produced in one day, 27th December, 1924.
from one chair-back in my bedroom.**

No. of bambu slats in chair	30	}	Area gnawed 405 sq. in.
Length of each slat	20ins.		
Average width of slats ..	0.75in.		
Weight of box and dust	639 grains	}	Dust produced 418 grains
Weight of box (a 2oz. Capstan tobacco box)	221 grains		
Weight of dust	418 grains		
Weight of dust per sq. inch	1.03 grains		

The way the borers attack the cycad stems is instructive. As you know they are encased in an armour of old leaf stumps and leaf scales, very hard. Inside this is a zone of hard tissue, representing both 'bark' and bast, then a thin cambium zone. Then comes the real xylem, in this case about $\frac{1}{2}$ -inch wide, curious in that the fibro-vascular tissue is not interlocked into solid woods, but remains in fairly loose strands like the oakum we play with when in jail, but of this more anon. The central pithy part of the stem, which constitutes about one-half of the whole, is of comparatively soft parenchymatous tissue traversed by isolated fibro-vascular strands.

The insects bore straight through the armour without stopping, save, maybe, to mop their brows, and so through the phloem, save a few better dentitioned athletes who stay and browse, into the pith, in which they revel.

The larvae also feed here. I only found one (can't go cutting up chairs larvae hunting) a vile maggot like half an inch of translucent crochet-cotton.

I conclude I brought the borers down in the cone, and as our furniture was made of fresh-cut live bambu, and was not attacked till it was bone-dry, it is more likely they came from the cone than that they had been invisibly loitering around awaiting the preparation of their sustenance. I have just been down to our bambu clump, and though old and new dead pieces are untidely plentiful, not a trace of our borer was visible, though borer holes as big as little shirt buttons did occur here and there. I should be quite easy in mind with the cone theory, but that since starting these notes I have turned out the bag in which the seeds were kept, scrutinised every separate bit, and sifted even the dust, and found no live borers, and only one dead one, though the nuts were bored to death. Did they migrate to the bambu? If so, they have the discriminating palate of a tea-taster. Personally, I'd just as soon dine off cycad nuts as bambu stems.

The borers seem to spend their lives eating—as the sacred writer hath it, they love darkness rather than light, because their deeds are weevil-ty; and they only seem to grace the outer world when on spooning matters bent. They, at any rate, are not to be found now (Feb. 25) save an odd scapegrace here and there.

On the 28th February I cleared up the dust from under the long chair in my bedroom, which I had deliberately allowed to accumulate, and found it peppered over with dead borers. Dead in scores, unsnotted by the sword, and there is not a living soul of them to be found in or about the house. This bears out my conclusion that they are short lived, but why the end came so suddenly—like an epidemic—I cannot say. Perchance their allotted days are few and circumscribed. Their imago life is under three months, their open-air life under three weeks, their end is catastrophe.

NATURE LOVERS' LEAGUE.

At the first committee meeting of the Club for the present year it was decided that Messrs. G. H. Barker, D. W. Gaukrodger, D. A. Herbert, and C. T. White, with Mrs. W. M. Mayo (Honorary Secretary of the League) be appointed a special sub-committee to deal with matters connected with the above branch of the Queensland Naturalists' Club.

A meeting of the sub-committee was held, and it was decided to try and further the nature-study movement in Queensland schools. It was thought that the children might be got in touch with through the teachers, and it was decided to write to the Under Secretary for Public Instruction, outlining a scheme for a nature study camp for teachers during the Christmas vacation.

It was also agreed that the Honorary Secretary interview the Principal of the Teachers' Training College (Mr. Morris) and put forward a scheme for teaching nature study to trainees. This has been done, and it is hoped to have this work well in hand very shortly.



QUEENSLAND NATURALIST CLUB.

Annual Statement of Receipts and Expenditure, 31st December, 1925.

Receipts.				Expenditure.			
1925.—Jan. 1.				1925.—Dec. 31.			
	£	s.	d.		£	s.	d.
To Cash at Bank ..	32	9	3	By Printing 'Naturalist'	15	0	0
„ Cash in Hand ..	2	7	6	„ Blocks	7	18	10
Dec. 31.				„ Rent	11	10	0
„ Members' Subs ..	43	10	0	„ Tent	28	0	0
„ Tent Hire	8	10	0	„ Flower Show ..	25	11	4
„ Flower Show ..	61	3	0	„ Wreaths	2	17	0
„ Sales 'Naturalist'	0	2	9	„ Lantern	1	9	0
„ Sales Certificates	3	9	6	„ Easter Excursion	1	10	0
„ Easter Excursion	1	10	6	„ Petty Cash	10	10	0
„ Interest	0	12	5	„ Printing Stationery	5	7	0
				„ Block, Nature Lovers'			
				League	1	6	8
				„ Transfer to Nature			
				Lovers' League ..	14	16	3
				„ Balance at Bank ..	27	18	8
	£153	14	9		£153	14	9
Credit Balance ..	£27	18	8				

NATURE LOVERS' LEAGUE.

Annual Statement of Receipts and Expenditure, 31st December, 1925.

Receipts.				Expenditure.			
1925.—Sept. 1.				1925.—Dec. 31.			
	£	s.	d.		£	s.	d.
Balance at Bank ..	14	16	3	Stationery	0	5	6
Dec. 31.				Balance at Bank ..	14	12	9
Sales Certificates ..	0	2	0				
	£14	18	3		£14	18	3
Credit Balance ..	£14	12	9				

(Signed)

C. W. HOLLAND,

6/2/26.

Hon. Auditor.

SYLLABUS OF MEETINGS AND EXCURSIONS, 1926.

Monday, March 15	.. ..	Evening Meeting.
Fri.-Mon., April 2-5.	.. ..	(Easter) camp-out at Myora, Stradbroke Island.
Monday, April 19	.. ..	Evening Meeting.
Wednesday, May 5th	.. ..	(Labour Day), Goodna.
Monday, May 17	.. ..	Evening Meeting.
Thursday, June 3	.. ..	(King's Birthday), Upper Brook- field.
Monday, June 21	.. ..	Evening Meeting.
Saturday, July 10	.. ..	Woodridge, Sth. Coast Line.
Monday, July 19	.. ..	Evening Meeting.
Saturday, August 14	.. ..	Sunnybank.
Monday, August 16	.. ..	Evening Meeting.
Sat.-Sun., Sept. 11-12	.. ..	Elimbah, Nth. Coast Line.
Saturday, Sept. 18	.. ..	Wild Flower Show and Natural History Exhibition.
Saturday, October 9	.. ..	Nudgee.
Monday, October 18	.. ..	Evening Meeting.
Saturday, November 13	.. ..	Ashgrove.
Monday, November 15	Evening Meeting.

The Council meets every second Monday.

7/2/27
PRICE 1/-

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AUGUST, 1926

... The ...
Queensland Naturalist

Journal of the
Queensland Naturalists' Club
AND
Nature-Lovers' League.

—
"The Poetry of Earth is never dead."—KEATS.
—

The Author of each Article is responsible for the Statements
expressed therein.



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The Queensland Naturalists' Club

— AND —

Nature-Lovers' League.

Official Journal—The Queensland Naturalist.

☐
OFFICE BEARERS, 1926.

☐

President:

Dr. E. O. Marks, B.A., B.E.

Vice-Presidents:

Mr. D. A. Herbert, M.Sc., and Mr. D. W. Gaukrodger.

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Hon. Excursion Secretary:

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(C/o Murray Fraser, Charlotte Street, Brisbane).

Hon. Treasurer: Mr. F. B. Coleman
Railway Terrace, Woolloowin, Brisbane.

Hon. Librarian: Mrs. J. C. Smith.

Hon. Secretary, Nature Lovers' League:

Mrs. W. M. Mayo,
Roseberry St., Highgate Hill, South Brisbane.

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Mr. J. H. Simmonds, M.Sc.	Mr. L. Franzen.

Hon. Lanternist: Mr. W. J. Sanderson.

Hon. Editor, Naturalist: Mr. C. T. White, F.L.S.
(Govt. Botanist, Botanic Gardens, Brisbane).



SUBSCRIPTIONS:

Ordinary Members 10s. per annum.
Country Members 5s. per annum.
Nature-Lovers' Certificate, 2d.

MEETINGS:

Evening Meetings are held at the Brisbane Women's Club Rooms
Albert House, C/r Albert and Ann Streets, Brisbane,
on the third Monday of every month.

Excursions are held once or twice a month from March to December.

The Queensland Naturalist.

JOURNAL OF THE QUEENSLAND NATURALISTS' CLUB
AND NATURE-LOVERS' LEAGUE.

VOL. V.

AUGUST, 1926

No. 6.

PROCEEDINGS.

EVENING MEETING, MONDAY, 19th APRIL, 1926.—The President (Dr. E. O. Marks) occupied the chair, and there was a good attendance of members and visitors. The meeting was more especially devoted to reports on the Easter Excursion to Stradbroke Island. Reports were given by Dr. E. O. Marks, geology; Messrs. Illidge and Franzen, entomology; Mr. J. E. Young, general zoology, and by Miss Baird, ornithology. A collection of geological specimens from Mount Isa were exhibited on behalf of Mr. R. Higgins by Dr. E. O. Marks.

EVENING MEETING, MONDAY, 17th MAY, 1926.—Dr. E. O. Marks (President) occupied the chair, and there was a good attendance of members and visitors. Messrs. A. J. Beck and V. T. Mankey were elected members of the Club. Col. Goadby (President of the Western Australian Field Naturalists' Club) was present, and a welcome was extended to him by the Chairman. Col. Goadby exhibited specimens of Orchids from Victoria and Western Australia. Reports on the excursion to Goodna were given by Mrs. W. M. Mayo (birds), Mr. L. Franzen (insects), and Mr. C. T. White (plants). It was proposed by Mr. White, seconded by Mr. Herbert and carried, that the Club ascertain if the Goodna or Woogaroo Scrub was on Crown land, and if so, that a move be made to have it gazetted a reserve. Mr. G. A. Barker spoke of a proposal to try and have the close season for Honey Parrots extended. Mrs. W. M. Mayo and Mr. H. Tryon also spoke on the matter, and it was resolved that the Club should support the proposal. The principle business of the evening was an address on the "Plants of the Philippines," by Mr. D. A. Herbert. Mr. Herbert illustrated his remarks by a fine series of interesting specimens.

EVENING MEETING, FRIDAY, 18th JUNE, 1926.

—The President (Dr. E. O. Marks) occupied the chair, and there was a large attendance of members and visitors.

The bird and turtle life of the Capricorn Islands formed the subject of one of the most enjoyable lectures given before the Club. The lecturer was Mr. E. F. Pollock, hon. secretary of the Royal Zoological Society of New South Wales. Immense colonies of sea birds, said Mr. Pollock, had their habitations on the Capricorn Islands. On North-West Island white-capped noddies and wedged-tailed petrel, or mutton birds, bred in millions. The white-capped noddies made their nests remarkably close together, and in the one tree he had observed as many as 300 birds, including 143 sitting on nests. On one branch covering an area of 8ft. or 9ft. square he had found 15 nests. The mutton birds covered the island like a huge cloud as soon as darkness set in, and made for the open sea early in the morning. The procession began as early as 3.30 a.m., and an hour later scarcely a bird could be seen on the island. Petrel burrows were a source of annoyance to the naturalists, the island being honeycombed with them. Reef herons bred on the islands in large numbers, generally not far from the beaches, and on Tryon Island several large colonies of silver gull were found. At the eastern end of North-West Island a pair of white-bellied sea eagles also were discovered, together with their nest, which was at the top of one of the biggest palms.

Mr. Pollock said that turtles also were of absorbing interest to some of the members of his party. There were three species of the turtle which inhabited Australian tropical seas—green, hawk's bill, and loggerhead turtles. The two last-mentioned species were scarce, and only a few specimens were noticed, but, on the other hand, the green turtle was plentiful. On the North-West Island there was a turtle cannery. About 22 to 25 turtles were caught per day, and these would be sufficient for 900 tins of soup. Green turtles reached maturity when 20 or 25 years old, but the hunters on the island said the average age of the turtles captured was 100 years. He had been informed that the canning company last year sent away 36,000 tins of soup made from about 1000 turtles, but they were still as numerous as ever. The female was believed to lay three clutches

of eggs, each containing 125 to 150, within a season, at intervals of two to three weeks.

A vote of thanks to the lecturer was accorded on the motion of Mr. C. T. White, seconded by Mr. J. E. Young. The motion was carried with enthusiasm.

EVENING MEETING, MONDAY, 21st JUNE, 1926.—Naturalists who sailed with Captain Cook on his various voyages formed the subject of a lecture given by Mr. Tom Iredale, of the Australian Museum, Sydney. The President of the Club (Dr. E. O. Marks) occupied the chair, and described Mr. Iredale as an authority on historical scientific literature.

Mr. Iredale said all knew who Captain Cook was, but he was not a naturalist, and knew nothing of this avenue of investigation in any period of his career. However, one reading his works would believe Cook to have been a good naturalist. The explanation was that he had with him on his several voyages very fine naturalists. On one of his great voyages the celebrated navigator was accompanied by Sir Joseph Banks, and Dr. Solander. The latter was, in the opinion of the lecturer, a world genius, as far as natural history was concerned. Banks and Solander did not go with Captain Cook on his second voyage, and J. Reynold Forster was selected by the British Government to assist Cook. Forster was a splendid naturalist. He was also a great linguist, and spoke and wrote with ease in 17 languages. His son was taken as a painter, and there was with them another artist named Hodges. When an animal was secured, the practice at the time was to have a painting made of it, and then an inscription was put on the picture in Latin, after which the animal was used.

On the third and last voyage Captain Cook took with him William Anderson, a capable self-trained zoologist, who had accomplished wonderful work but very little of it apparently had been preserved. Unfortunately, Anderson died shortly before Cook was killed at Hawaii.

A series of pictures of great historic interest were screened, and Mr. Iredale commented interestingly on each, giving, in many cases, the history of the picture itself. Pictures, painted by artists who sailed with Cook on his various voyages, of Cape Town, New Zealand, Tasmania, and seascapes, with icebergs, were displayed.

Many rare paintings and drawings of birds also were depicted.

A vote of thanks to the lecturer was carried on the motion of Mr. G. H. Barker, seconded by Mr. D. A. Herbert.

Mr. G. H. Barker drew attention to the wholesale destruction of bird-life on Oyster Cay (Michaelmas Reef) a few miles from Cairns, and mentioned that a movement was on foot to try and get some measure of protection for the birds. He moved that the Club support any efforts in this direction.

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ADDRESS TO MEMBERS OF THE QUEENSLAND NATURALISTS' CLUB.

By W. B. Alexander, M.A.

(Delivered at the Annual Meeting of the Queensland
Naturalists' Club, 22nd Feb., 1926.)

Ladies and Gentlemen,—

I regret that circumstances prevent me from being present at the Annual Meeting of the Club in order that I might complete my duties as president for the year by delivering an address and welcoming my successor to the chair. I expect, however, that at the date of the meeting I shall be somewhere in the Pacific Ocean between New Zealand and Panama. We may anticipate that in a few more years the advance of science will make it possible for one so situated to deliver an address by wireless in Brisbane, and perhaps even to be seen by his audience. If so, science will have gone far to solve the supposed impossibility of being in two places at the same time. Under present circumstances, however, I must still avail myself of the old-fashioned method of committing my thoughts to paper.

It is less than five years since I arrived in Queensland, and became a member of the Naturalists' Club, so that I cannot claim more than a very superficial knowledge of the natural history of the State. It has been my fortune, however, to travel somewhat extensively in the Southern and Central portions of the State during these years, and I have recently had the opportunity to visit localities so far apart as Cairns in the North and the Lamington National Park, on the

Southern border, so that I can claim some slight acquaintance with most of the types of flora and fauna which occur in the State.

To one whose previous knowledge of Australia was derived from residence in the Western and Southern portions of the continent, the striking feature of Queensland is the great diversity of environment to be found within its borders. This diversity of environment leads to such a wealth of species of plants and animals that it is very difficult for a single individual to acquire a knowledge of more than one or two branches of natural history.

Yet living organisms cannot be studied satisfactorily without a knowledge of their environment, and an important part of the environment consists of other living organisms, plants, and animals, with which they enter into competition, on which they prey, or which prey upon them. The specialist in any one group of natural history thus requires constant assistance from workers in other groups. A Club such as ours, which provides opportunities for workers in all branches of natural history to meet and to make excursions together, is thus of great benefit to the naturalist who is not a mere student of dead specimens.

Systematic work—the study of specimens and their classification—is of course essential. Observations on living organisms are of little value unless the specific identity of the particular organism studied has been determined, but it must not be forgotten that biology is the study of living things, and its aim should be to understand the mode of life of the organism and its relation to its environment. Work in the herbarium or the museum is an essential preliminary to this end, but is not to be regarded as an end in itself.

I have already remarked that the striking feature of Queensland is the variety of types of environment which occur in it. These are mostly strikingly characterised by the vegetation, but the animal life of each type of environment, though less obvious, is equally distinctive. To my mind, a study and classification of these various environmental types is badly needed by Queensland naturalists. This is in the first instance work for a botanist, but when the types have been defined a comprehensive study of each would involve the combination of botanists and zoologists.

The natural history of many oceanic islands has been studied in this way and volumes devoted to the results. Yet a similar study of one of those islands of Papuan type isolated in the Australian forest country would be of equal interest. These Papuan islands, commonly called "vine scrubs," or "tropical scrubs," are so rapidly disappearing that their study is nearly as urgent as that of the Australian aboriginal himself. Of course, ever since the settlement of Queensland these scrubs have attracted the special attention of naturalists, and their fauna and flora are fairly well known, but as far as I know they have not been treated comprehensively and separately, but only as part of the general flora and fauna of the State. I am not aware of any detailed map showing the distribution and extent of the true tropical scrubs, though this would be of great interest to naturalists. Between those of Cape York and the districts about Cairns and Cardwell, and those of South-eastern Queensland and the Northern Rivers of New South Wales, they would appear to be an extensive gap in which true tropical scrubs do not occur. This is reflected in the distribution of some of the birds of Papuan types, for example, Rifle-birds, our representatives of the Birds of Paradise. One species, *Ptiloris paradisea*, is found in the scrubs of the northern rivers of New South Wales and ranges north to the Bunya Mountains and Blackall Ranges. A second, *P. victoriae*, apparently extends from about Cardwell to Cooktown, and a third, *P. magnifica*, is confined to Cape York. A specimen of the southern bird was obtained by Broadbent on the Berserker Ranges, near Rockhampton, so that it is possible that the apparent discontinuity in the ranges of the genus is due to lack of knowledge, and is not a reality.

The word "scrub" is badly overworked in Queensland and is used for almost any dense growth of trees, though I have not heard it used for mangroves. The true tropical or vine scrubs to which I have just referred are perhaps more easily distinguished by the presence of those buttressed trees of which Mr. Francis has made a special study. Somewhat similar in many respects, but with few or no buttressed trees, are the "dry scrubs" which are so characteristic of Central Queensland. From these scrubs, also, palms are generally lacking, though they may occur along the creeks. On the other hand, amongst the trees and scrubs which compose them there

are often species characteristic of the inland districts, such as brigalow and belar, and bottle-trees (*Sterculia*), of large size, are usually a conspicuous feature. Such scrubs seem to extend from the Darling Downs as far north as Townsville, and they appear to be very rich in forms of insect life, yet they have been largely neglected by naturalists, and I have found hardly any published information about them. I do not know of any bird peculiar to them, unless it is the Black-breasted Quail (*Turnix melanogaster*), but throughout a large part of Queensland they seem to be the special haunt of the Scrub Turkey, Bar-shouldered Dove, and Golden Whistler (*Pachycephala pectoralis*).

The type of scrub to which I have just referred should perhaps be regarded as a transitional form between the tropical scrubs and the brigalow and belar scrubs of the inland districts, which are often almost pure stands of one or other of these trees, or of the two intermingled, covering very large areas. It is not my intention to attempt a classification of scrubs, for which I have not the necessary knowledge, but only to urge the desirability of such a classification. The three birds to which I have just referred are not confined to the dry scrubs. The Scrub Turkey is found also in tropical scrubs, the Bar-shouldered Dove in the mangrove thickets, and the Golden Whistler in forest country. What are the special features of mangrove thickets and dry scrubs which make them acceptable to the Bar-shouldered Dove, a bird not often found in any other part of the country? Until such a question can be answered we cannot pretend to any intimate knowledge of the biology of the species.

From the point of view of the ornithologist the mangrove thickets on our coast are perhaps the most distinctly marked of any formation. The Mangrove Kingfisher (*Halcyon chloris*), Mangrove Honeyeater (*Meliophaga fasciogularis*), Mangrove Warbler (*Gerygone cantator*), and Mangrove Bittern (*Butorides striata*) are so completely adapted to life among these trees that they rarely leave them, whilst few other birds venture into this unusual type of habitat.

The most familiar of our birds are chiefly those which frequent open country. When a homestead is placed on a tract of scrub and a clearing is made around it, it is not long before Wagtails (*Rhipidura leucophrys*) Magpies (*Gymnorhina tibicen*), and Pipits (*Anthus aus-*

tralis) make their appearance. These birds have increased enormously as a result of the settlement of white men in Australia, just as the inhabitants of the scrub have dwindled. In New Zealand the same process has been even more marked. The greater part of the country was originally covered with bush, of types which would be called "scrub" in Queensland. All the small native birds lived in the bush with the exception of the Pipit (*Anthus novaeseelandiae*) and the Fernbird (*Bowdleria punctata*) the former frequenting grassy country and the latter swamps. The burning of most of the bush and the draining of swamps has left the New Zealand Pipit as the only common native bird over great areas of cultivated and pastoral country.

In Australia the birds adapted to living in open country are fortunately far more numerous than in New Zealand, and as the scrubs in coastal districts are cleared away birds from the interior districts seem to be gradually making their way towards the coast. About Brisbane the Redbacked Kingfisher (*Halcyon pyrrhopygius*) is now fairly common, but it is most unlikely that it occurred in the district prior to its settlement by white men a hundred years ago. Another inland bird found in small numbers on the Upper Brisbane River is the White-backed Swallow (*Cheramoeca leucosternum*), and probably the same remarks apply to it. I have seen the Quarrion (*Leptolophus hollandicus*) in the Lockyer district, but this inland species is nomadic in habits, and possibly visited the more open parts of the coastal districts before settlement took place. It is noteworthy that this species was one of the birds obtained in Australia on Captain Cook's first voyage. We do not know at which of the several localities where he landed this species was obtained, but we may surmise that it was at Bustard Bay, which received its name from the Plain Turkey (*Eupoditis australis*), which was killed and eaten there. I have suggested elsewhere that the year of Captain Cook's visit was probably a specially dry season in Queensland, since a Bustard was obtained on the coast, and the fact that a Quarrion was also secured confirms me in this view. A careful reading of Cook's and Banks' journals lends support to this conclusion, which may perhaps be of value to meteorologists in enabling them to calculate the cycles when droughts may be anticipated. Thus a knowledge of the habits of birds may be of considerable economic importance.

The past year has been noteworthy for the publication of the last essays of the late E. J. Banfield, edited by our former president, A. H. Chisholm. Mr. Banfield's notes on the various changes that have taken place on Dunk Island since he first went to reside there are of the greatest interest from the point of view which I have attempted to indicate. Especially noteworthy is his account of the results of the cyclone which devastated the island some years ago. The immediate result was the levelling of great areas of forest and the complete disappearance or wiping out of several species of birds. He noticed, however, that shortly afterwards a thicket of shrubs and creepers sprang up amongst the fallen vegetation, and he anticipated that in the shelter of this thicket scrub trees would spring up so that open forest country would be converted into jungle. Unfortunately he did not live long enough to inform us whether this anticipation was realised, but if it were it is obvious that scrub-frequenting birds and other forms of animal life would find additional shelter, and would increase at the expense of forest types.

Man's operations have so generally operated adversely upon the jungle types that any gain on the other side is of great importance, even if it comes only in such drastic fashion. Incidentally, it may be noted that a few types of scrub-bird have been favoured by the introduction of the pests which have over-run so much of Queensland. The shelter provided by thickets of lantana is appreciated by Coachwhip-birds (*Psophodes olivaceus*), whilst the Scrub Turkey (*Cathetura lathamii*) finds security among the dense growth of prickly pear and a valuable food-supply in its fruits. The latter are also greatly appreciated by Emus.

In conclusion, I would once more emphasize that now that the species of animals and plants found in Queensland are mostly known and classified, we should not consider the work of the naturalist as done; on the contrary, Queensland naturalists building on the foundation thus laid should endeavour to gain an insight into the relationships existing between the different life-forms of the State. Our veteran member, Mr. Illidge, has set us an excellent example in his studies of the life histories of the insects associated with particular species of trees. I have already cited Mr. Banfield's studies of the relations between various organisms on Dunk Island.

My own knowledge of Queensland natural history is not sufficient to enable me to treat its bird life from this point of view in a comprehensive fashion, but I have endeavoured to suggest the lines on which such studies should proceed. The harvest truly is plenteous, but the labourers are few. I trust that the Queensland Naturalists' Club will continue to prosper and to encourage such work, and I desire to thank the members for their kind support during the year now concluded.

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NOTES ON STRADBROKE ISLAND.

(By R. Illidge.)

Easter again found the members of the Field Naturalists' Club represented by many of its members of both sexes investigating the natural history of this large island, which, together with Moreton Island, forms the great natural eastern breakwater enclosing Moreton Bay.

It has not yet—probably will not for many years to come—revealed all its secrets, as the short periods of time during which members can carry on their work, preclude much observation.

The island in former years was fairly well known to me from Moondarewa to Amity Point, thence to Point Look-out, and inland to many of the lagoons. Twice I made trips across from Canaipa to the 18-Mile Lagoon.*

These were chiefly in quest of birds, subsequently followed, however, by the collecting of shells around the beaches and banks, with Amity Point as a base. On the banks many handsome species of cowries (cypraea) were obtainable amongst these *Cypraea eburnea* was the rarest. Low water of spring tides, also after heavy storms will yield many fine species of shells.

Since the formation of the present Field Naturalists' Club in 1906, my attention has been given more to the collecting and study of insects, which even in early days were not by any means neglected. Now, what little knowledge I have as regards the insect fauna of Stradbroke Island, and my exchanges with southern entomologists, has led me to the conclusion that its fauna in

*Birds of Stradbroke Island, by R. Illidge. "Queensland Naturalist," Vol. III., No. 6, November, 1922.

this respect approaches more nearly to that of the country round Sydney than to that of Brisbane. It is notable the number of species in Coleoptera which are identical from Sydney forms, and not found about Brisbane. Again, in Lepidoptera are many species confined to the Island, as also is the case in Hymenoptera, Neuroptera, Diptera, etc. There are certainly numbers of insects which are equally at home on the Island as on the adjacent mainland.

The explanation of the similarity of forms to those of Sydney may perhaps be found in the soil and vegetation of the Island being of somewhat like character to that around that city.

A fact worthy of note about this excursion was the almost entire freedom from the worry of mosquitoes. Neither by day nor by night were we troubled by these dipterous plagues. Might it not be well for our city fathers to enquire into this remarkable scarcity of these insects in a place where we were surrounded by swamps, usually considered as fine breeding grounds. Perhaps they had all departed for Dunwich, where the dengue was said to be prevalent.

Another matter that requires attention is that the placards as to sanctuary are openly set at defiance by young men as to shooting. One sturdy fellow I saw coming ashore with a gun, and a lot of boys following him. I warned them, and plainly told them I should consider it a duty to report the matter. They simply defied me. This was close to our camp at One Mile, and I was told they were heard shooting on the hill beyond us.

GEOLOGICAL NOTES ON THE EASTER EXCURSION.

(By Dr. E. O. Marks, President.)

Moreton and Stradbroke Islands, consisting almost entirely of sand dunes, do not offer a wide scope for the study of "solid" geology. Indeed, it is only in four very limited areas (one on Moreton and three on Stradbroke) that any rock is known to be exposed. Nevertheless, our last three Easter excursions have resulted in some useful contributions to the geology of these islands.

Last Easter our visit to Point Lookout provided a geological surprise, in finding that headland to consist

of trachytic lava, a fact not previously recorded. This year we were able to examine the sandstone, well known to occur at Dunwich.

This is a clayey, ferrugineous, coarse-grained massive sandstone. Such bedding as it has shows it to be nearly horizontal. Similar sandstone occurs also at Peel and Coochindlo Islands. This has usually been regarded as part of the very extensive Bundamba Mesozoic sandstone series, which immediately overlies the Ipswich coal measures, typical Ipswich measures occurring on the mainland shore at Wynnum and Manly. Unfortunately, the coarse-grained and loosely cemented sandstone at Dunwich is not a likely matrix for the preservation of fossils by means of which its age could be determined.

When examining the water-worn quartz pebbles of which the coarse-grained portions are composed, we were fortunate in finding one pebble of weathered trachyte or trachytic tuff, which is of almost as great interest as a fossil would have been.

In its decomposed ground mass of feldspathic material are embedded numerous phenocrysts of quartz with sharp crystalline outlines, often partly corroded by the magma or fragmentary, but none showing any rounding by attrition. The ground mass shows a tendency to a flow structure, suggesting the fragment to be a lava rather than a tuff.

In comparison, the trachytic Brisbane tuff, so familiar to us all, shows very similar quartz-grains in a feldspathic ground mass, the quartz-grains being almost as numerous, but with a greater tendency to be fragmental, and sometimes with a structure suggestive of a flow. Some of the rhyolite at Point Lookout also shows very similar quartz phenocrysts, many apparently fragmentary, corroded by the magma as in the pebble, though not so numerous, and with a marred flow structure.

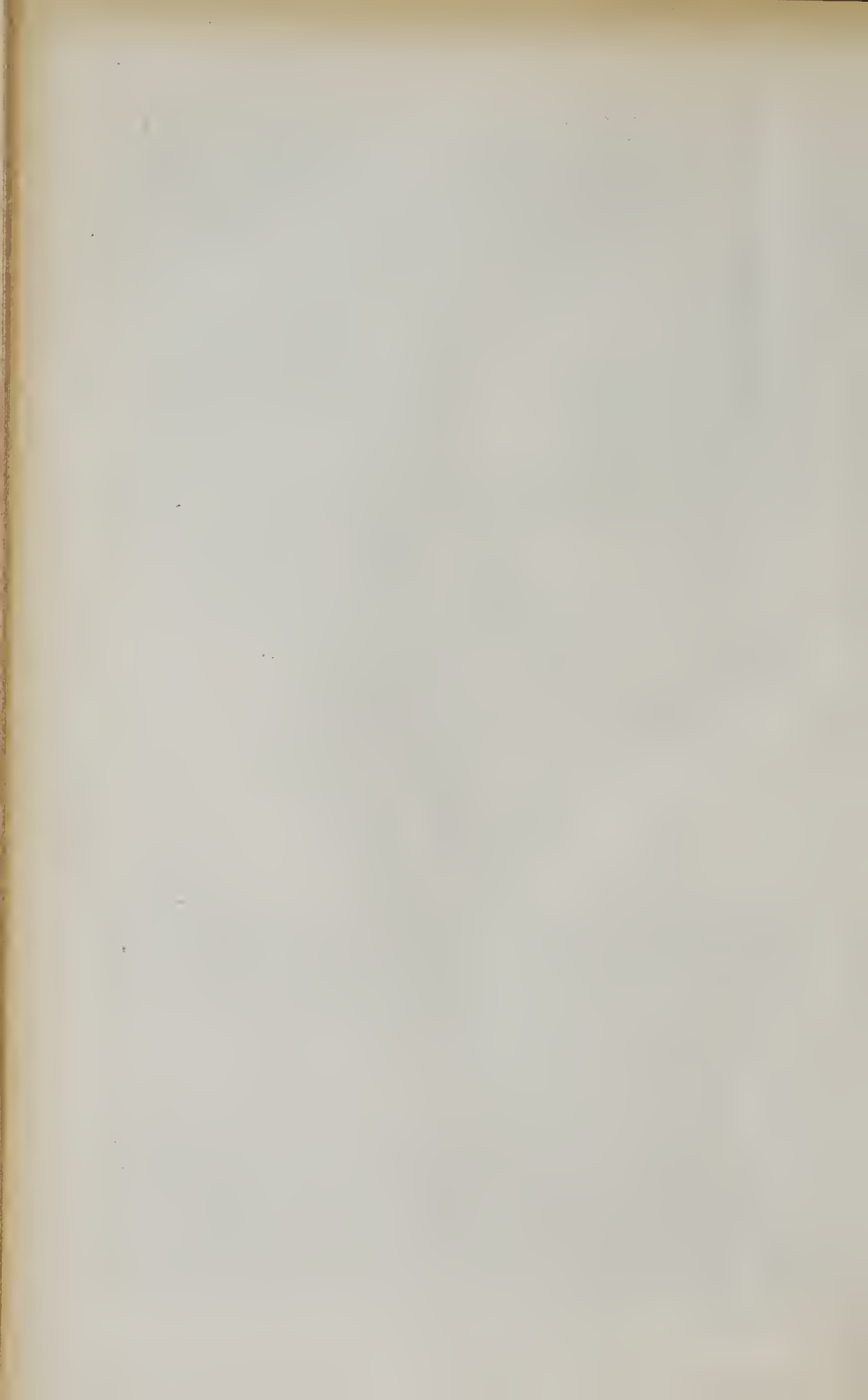
Now, the Brisbane tuff lies at the very base of the Ipswich measures, and the nearest known outcrops occur at Castra and Tingalpa, some 14 miles from Dunwich in a westerly direction. The nearest known trachytic lava is Point Lookout, 10 miles to the north-east, the next nearest being some 40 miles distant.

As a source of origin for this pebble, we must look either to the Brisbane tuff or Point Lookout.



Planchon's Stringybark (*Eucalyptus Planchoniana*),
Sunnybank, near Brisbane.

—Photo. C.T.W.



The Brisbane tuff is a rather soft rock, which does not stand attrition at all well, and would soon be ground down to powder in a stream. It is unlikely to have been carried 14 miles in a coarse gravel, but cannot be quite excluded on that account. If the pebble is a fragment of Brisbane tuff, this would show definitely that the sandstone is of Tertiary age, not Bundamba, for the Bundamba sandstone follows in comfortable and overlapping sequence on the Ipswich measures, under which the tuff lay buried. No fragment of the tuff could have been available until earth movements and denudation had exposed it, long after Bundamba times.

Now, the other trachytic eruptions, Flinders Peak, Glass House Mountains, etc., have usually been regarded, though without absolute proof, as of Tertiary age. They are almost certainly later than the Bundamba sandstone, and it is more than likely that the Point Lookout eruption belongs to the same phase of volcanicity.

If our Dunwich pebble came, as seems likely, from the Point Lookout lava, it means that either the Dunwich sandstone is of a later period in the Tertiary or else that if the sandstone is Bundamba, the Point Lookout eruption occurred previous to that.

As there is no evidence that the sandstone is part of the Bundamba series, we are justified in saying that the probability is strongly in favour of it being of Tertiary age, and this view is strengthened by the recent investigation of Messrs. C. C. Morton and Owen Jones, who both regard the loose sandstone at Humpy-bong as of Tertiary age.

We must, however, clearly bear in mind that the age of the Dunwich rock is not yet proved, though the pebble has gone a long way to solve the problem.

If, as seems probable now, the Dunwich sandstone, as well as that of Peel Island and Coochi-mudlo is that of Tertiary age, this gives a large extension to the already known areas of post-mesozoic deposits near Brisbane. It also opens up the question of the distribution of land and water in Tertiary time, for there is nothing now but sand dunes between the Dunwich sandstone and the ocean beach.

THE EUCALYPTS OR GUM TREES OF THE BRISBANE DISTRICT.

(By C. T. White, Government Botanist.)

VI.

(Continued from the "Queensland Naturalist," Vol. 5, p. 53.)

9. *Eucalyptus Planchoniana* (Planchon's Stringybark.)

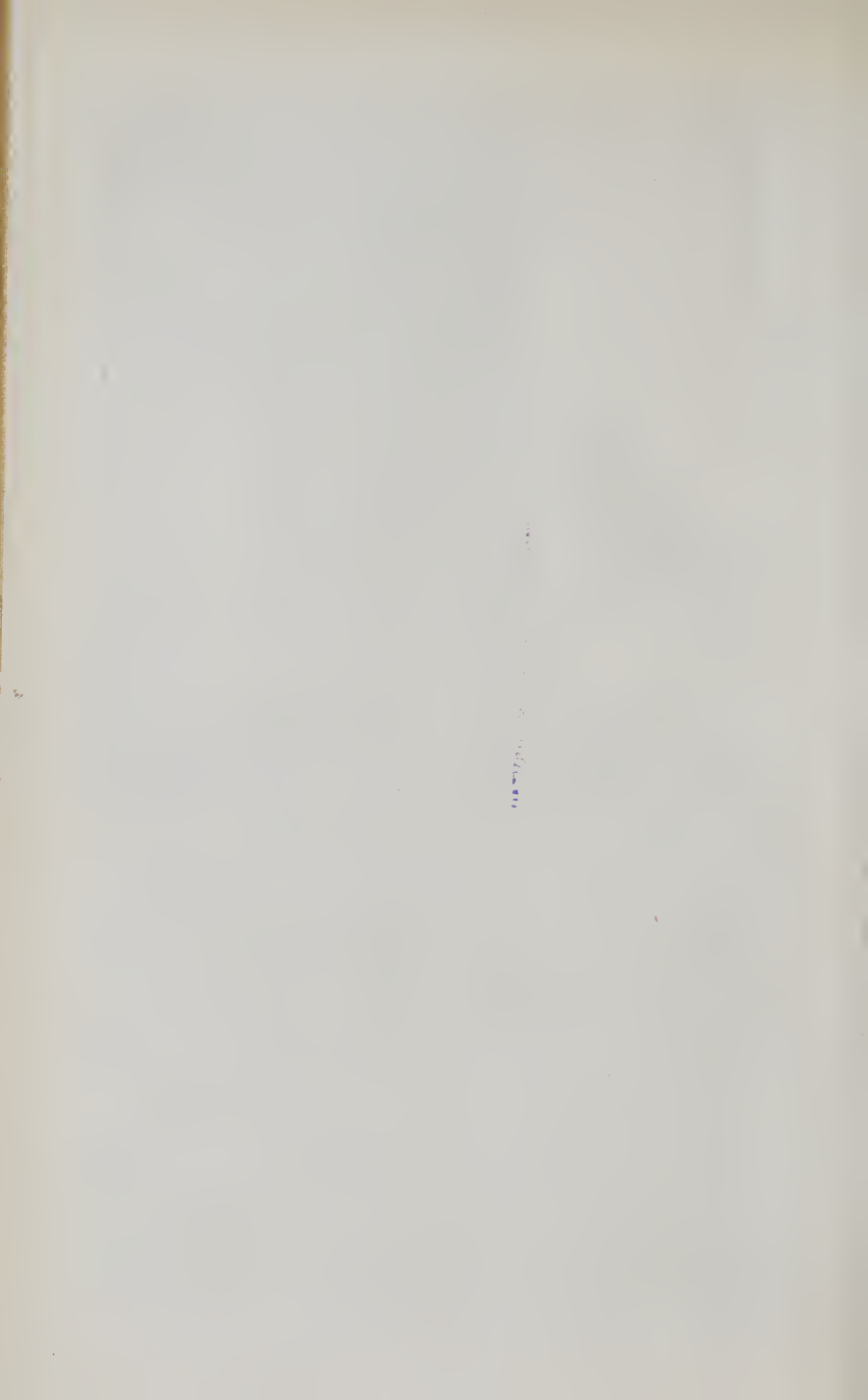
Description.—A moderate to large sized "stringybark," but often dwarfed to a mallee-like shrub on very poor soils, rarely forming a good bole, but branching from near the base. Young branchlets angular, often markedly compressed-quadrangular. Coppice ("sucker") leaves not markedly different from the adult, but mostly broader, not so markedly falcate and sometimes inclined to be ovate, 3 to 6 inches long and up to 2 inches broad, apex markedly apiculate, base oblique, tapering to a stalk of about half-an-inch, veins and veinlets scarcely visible in the green leaves, but plainer in the dried, intramarginal vein, one line from the edge of the leaf, or often much closer. Ordinary (secondary or adult) leaves coriaceous, lanceolate, usually somewhat falcate, often markedly so, the upper part tapering to a long acute apex; petiole (leaf stalk) prominently twisted, half to three-quarters of an inch long, blade averaging about 6 inches long and 1 inch wide, midrib distinct, lateral nerves oblique distinct in the dried specimens, a very variable distance apart, averaging perhaps about a quarter of an inch; intramarginal vein usually distinct, $\frac{1}{2}$ to 1 line distant from the margin. Flowers in simple axillary, 4 to 7 flowered umbels; peduncle $\frac{1}{2}$ to 1 inch long, much flattened, up to $\frac{1}{4}$ inch broad towards the top; Calyx tube cylindrical, 8 to 9 lines long, 3 to 4 lines broad at the top; operculum conical about 4 lines high. Stamens very numerous, all fertile, about 5 lines long. Seed capsule large; irregularly globose and veined or ribbed, about $\frac{3}{4}$ -inch in diameter, 3 to 4 celled, rim smooth, vertically descending 1 line or slightly more deep, valves not protruding.

Distribution: South-Eastern Queensland (Brisbane District) and New South Wales, as far south as Camden Haven. It is very abundant on poor sandstone country in the Eight-mile Plains area, near Brisbane, being commonly associated with *Eucalyptus Baileyana* and



Bailey's Stringybark or Rough Stringybark (*Eucalyptus Baileyana*), Sunnybank, near Brisbane.

—Photo. C.T.W.



Angophora Woodsiana. On Stradbroke Island and Moreton Island (Moreton Bay) the species often covers large stretches of sandhills country, where it is dwarfed to a shrub or small tree of 6 to 8 feet; in better situations trees of the normal size occur.

Common Names: About Brisbane it is simply referred to as "stringybark," Maiden gives "Bastard Tallow-wood" as a local name in common use in New South Wales.

Botanical Name: *Eucalyptus* (see under No. 1), *Planchoniana* in honour of Mr. J. E. Planchon, one-time director of the Botanic Gardens at Montpellier, Southern France.

Timber: The timber has the reputation of being hard and durable, but is not often cut due to the irregular nature of the trees, even those forming a distinct trunk are often pipy.

Botanical Reference: *Eucalyptus Planchoniana* Ferd. von Mueller, *Fragmenta Phytographiæ Australiæ*, Vol. XI., p. 43, 1878.

10. *Eucalyptus Baileyana* (Bailey's Stringybark.)

Description: A large tree with a thick furrowed fibrous dark grey bark, often blackened by fire, the bark fibres much interlaced; the inner bark with the interstices filled with brittle, reddish, somewhat flaky material. Branches of coppice shoots purplish, clothed with a rough stellate pubescence. Coppice ("sneker") leaves markedly different from the adult, green and glabrous or glabrescent above, white and rough to the touch underneath, due to a dense clothing of stellate hairs, opposite to sub-opposite, variable in size, at first small (1 to 1½ inches long and ½-inch wide) elliptic on short stalks of 1 to 3 lines, later ovate up to 4½ inches long and 2 inches wide, on stalks about ½-inch; apex apiculate. Ordinary (secondary or adult) leaves lanceolate, falcate or more rarely straight or nearly so, tapering to a long acute apex dark green above; paler beneath; petiole half to three-quarters of an inch long, blade averaging about 4½ inches long, from under half an inch to three-quarters of an inch wide, the lateral nerves not very prominent above, more clearly visible beneath, where the veinlets are also visible, main lateral nerves about ¼-inch apart, but with a secondary nerve or nerves between them, intra-marginal vein close to the margin, scarcely visible above, fairly distinct below. Flowers in simple 3 to 7 flowered

umbels in the upper axils, sometimes forming a short terminal inflorescence, peduncles about $\frac{1}{2}$ -inch long. Calyx tube turbinate about $\frac{1}{4}$ -inch long, tapering at the base to a distinct pedicel of variable length (2 to 6 lines); operculum rounded, about 1 line high, with a small apiculate apex. Stamens 2 to 3 lines long, anthers small, the cells parallel, opening by longitudinal slits. Seed-capsules sub-globose or broadly urn-shaped, $\frac{1}{2}$ -inch or slightly more in diameter, 3-celled, the valves very slightly protruding.

Distribution: Eastern Queensland and Northern New South Wales. It is very common in the Eight-mile Plains area, in the neighbourhood of Brisbane (Sunnybank, Mt. Gravatt, Kuraby, etc.). In Queensland it extends as far north and inland as Eidsvold (Burnett District) and in New South Wales as far south as the Clarence River.

Botanical Name: *Eucalyptus* (see under No. 1), *Baileyana*, in honour of F. M. Bailey, for many years Government Botanist of Queensland, and who was the first to collect specimens of this particular species.

Common Names: "Black stringybark" and "Rough stringybark" are names sometimes given to the trees. "Bastard Ironbark" is a name given by Maiden as in use on the Clarence River.

Timber.—The timber is not sawn so far as I know, but is used, split for fences, etc., where the trees occur. The larger trees are often faulty.

Botanical Reference.—*Eucalyptus Baileyana* Ferd. von Mueller in *Fragmenta Phytographiæ Australiæ*, XI. 37, 1878.

Note on the Botany of the Species: Maiden, in his *Forest Flora of New South Wales*, Vol. IV., p. 71, pointed out that Mueller in his original description "mixed up two trees under the one name," and that his figure in "*Eucalyptographia*" is a composite one of *E. Baileyana* and *E. eugenioides* (this series No. 12). He then goes on to re-describe the species. The co-type material, consisting of part of the original gathering is in the "Queensland Herbarium," and there is no doubt that the flowering specimens are those of *E. eugenioides*; the two trees grow alongside one another in the type locality.

NATURE LOVERS' LEAGUE.

Following the notice in the last issue of the "Queensland Naturalist," it is pleasing to report that the Honorary Secretary of the League (Mrs. W. M. Mayo) interviewed the principal of the Teachers' Training College (Mr. Morris) and discussed with him a scheme for teaching Nature Study to the more advanced trainees. It was arranged that different specialists in the Naturalists' Club should take groups for field work one afternoon every month, from May to October, inclusive.

The first outing was held on Friday afternoon, the 28th May, when a class of over fifty young teachers visited the One Tree Hill area. Mrs. W. M. Mayo and Mr. G. H. Barker spoke on the birds, and Messrs. Francis and White discoursed on the plants. The second outing of the series was held on Friday afternoon, the 26th June, when a visit was made to Ashgrove. Mrs. W. M. Mayo and Mr. G. H. Barker gave instruction on the birds noticed, and Messrs. D. A. Herbert and C. T. White explained the trees and plants of the forest and creek-side.

SYLLABUS OF MEETINGS AND EXCURSIONS,

SEPTEMBER—NOVEMBER, 1926.

Saturday-Sunday, Sept. 11-12 .. Elimbah, N. Coast Line.

The country around Elimbah has not before been visited by the Club, but in the spring time seems to present good opportunities to naturalists, particularly to those interested in plant life.

Saturday, Sept. 18 Wild Flower Show

School of Arts Hall, afternoon and evening. It is intended this year to restrict the annual Natural History Exhibition to wild flowers. It is hoped to have staged a very representative collection of flowers from Southern Queensland, labelled up with popular and botanical names.

Saturday, October 9 Nudgee.

Monday, October 18 Evening Meeting.

Saturday, November 13 Ashgrove.

Monday, November 15 Evening Meeting.

The Council meets every second Monday.

